

AMERICAN FRUIT GROWER MAGAZINE



November, 1926
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No. 11.

Present Day Viewpoint Toward Bud Selection and Rootstocks

By C. E. Durst

I DO NOT KNOW just what your views are regarding the problems of bud selection and rootstocks, which, of course, are vital matters in successful fruit growing. I cannot, therefore, be accused of being biased in favor of or against any ideas you may have about these subjects. Most of us, I am aware, have our hobbies and our pet viewpoints. Horticultural practice is full of things of this kind. But while we may have our own ideas about these problems and others, I am sure that all of us are progressive enough and broad-minded enough that we want to know the facts about the situation whether they agree with our ideas or not. If we have been right, we want to know it so that we can continue along the same lines. If we have been wrong, we want also to know it so that we can adjust our practices accordingly. We can make the fastest and surest progress only when our practices are based on premises which are absolutely sound. In this article I am going to present the facts about bud selection and rootstocks as I understand them to be, and in so doing I want to assure readers that I have no desire whatever to differ with or criticize any viewpoints they may have. I realize that in problems so vital in the business as bud selection and rootstocks there are differences in viewpoints and beliefs. The fact that so many differences in opinion exist about these matters constitutes good reason why growers and nurserymen should give the most careful attention to the subject, in my opinion.

Kinds of Variations

We can approach the subject best, I believe, by first considering briefly some of the elemental facts in plant life. One of the outstanding features about plant life is the great variation that exists. There are numerous families, genera and species, and there are many varieties of most species. Even within varieties there are marked differences in size, vigor, productivity, etc., of different plants. No two plants are exactly alike.

I shall not attempt to consider the subject of specie and family differences. For our purpose, it will suffice to consider only the differences within species and varieties. These differences are of two kinds. The scientists call them continuous and discontinuous variations.

Continuous variations are caused by differences in climate, soils, nutrition, exposure to light, etc. So far as nursery stock is concerned, they relate chiefly to differences in size, vigor and productivity. The Delicious apple, for instance, assumes a different shape in different parts of the country, but such differences are due to environment and not to differences in hereditary make-up. The Emperor grape develops a black color when the variety is grown near the coast in California and a red color when the same grape is grown in the interior; but cuttings taken from vines growing in both places will produce the same results when rooted and grown in the same place. Continuous variations are the result of differences in environment and not of differences in the inherent hereditary qualities of the plant.

Discontinuous variations are caused by differences in hereditary qualities. For instance, among apple varieties we have many shapes and colors of fruit, various types of branching, numerous shapes and sizes of leaves, etc. These differences are due to differences in the nature of the hereditary units carried by the plant, and changes in environment will not materially affect them.

Important Facts in Plant Inheritance

Going a step further, we need to consider very briefly the important facts connected with the inheritance of plant characteristics. The world was in the dark about the principles of inheritance until 1900. In that year three European scientists rediscovered the account of Mendel's experiments, which had been resting on li-

WE ARE presenting on this page the first installment of an address given before the Southern Nurserymen's Association at its recent convention at Atlanta, Ga. The address treats a subject which is vitally important in fruit growing and nursery work. The author has discussed this subject at several meetings the last couple of years and has found that many growers are not well informed on the rapid advances made in our understanding of plant inheritance. A better understanding of these matters will help growers to get the best results with the least expense and work. The subject is a difficult one to present, and the article may prove to be hard reading for some. We believe that it will pay you to read the article carefully and to take time to reason out the principles involved. A clear understanding of the matter will enable you to conduct your operations more effectively.

brary shelves since 1865. Mendel's account gave us the first plausible explanation of inheritance. Some scientists questioned his conclusions at first, but one by one they found that Mendel was correct. Within the last 25 years, thousands of experiments have been conducted, and the results verify in principle the conclusions reached by Mendel.

Briefly stated, Mendel's findings, augmented by some investigations made since 1900, are as follows: All of our higher plants originally start from a single cell, which is the result of union of two cells, one coming from the mother and one from the father. Each of these parent cells contains a full set of hereditary units. There are probably hundreds of these units in the make-up of every plant and animal, and each has to do with some specific part or function of the plant. In the small banana fly, which

has been very thoroughly investigated because of its rapid multiplication, over 500 units have been accounted for. In corn about 100 hereditary units have been identified.

When the two parent cells unite to form the single cell that is the start of the new individual, the new cell contains a double set of units. The cell then begins to multiply by division, and at each division a very exact splitting of the hereditary units takes place. All of the body cells, therefore, under normal conditions, contain hereditary units of exactly the same kind. It is the nature of these units, acting in conjunction with each other, which determines the characteristics of the new plant. For instance, if both parent cells of a sweet pea plant were to bring in units for white flowers, then the flowers would be white. Red flowers would be produced if both parent cells brought in units for red color. If one parent cell contained the red producing and the other the white producing unit, the resulting individual would bear red flowers because redness in flowers of sweet peas is said to be dominant over whiteness. Some of the units apparently have to do only with a single plant character, while others affect two or more characters. The important thing for us to bear in mind about Mendel's principle is that every plant is the result of two sets of definite hereditary units acting in conjunction with each other.

Now, when an animal or plant is mature and forms its reproductive cells, the double set of hereditary units divides in such a way that the reproductive cells contain but one set each. After this reproductive division has occurred, the units are as pure as they ever were. In other words, they are not contaminated by living in conjunction with other complementary units throughout the life of an individual.

This information enables us to understand why so much variation exists among plants which are the result of cross pollination. In such cases, we are constantly bringing together complementary hereditary units of different kinds. Because of the large numbers of units involved, practically numberless combinations of units are possible. Each new combination results in new effects, and therefore a tremendous amount of variation can readily be accounted for.

Hereditary Units Quite Stable

We are now prepared for the next step in our discussion. What are these hereditary units? They are so small that they cannot be seen. Only their effects are visible to the naked eye. Explanations differ as to their nature. Undoubtedly they are organic in composition. The hereditary units maintain their composition with very great tenacity, and it is only with extreme rareness that changes occur in their structure during the processes of reproduction and body growth. When such changes take place, they result in what we call bud mutations or sports. The appearance of the Starking apple, for instance, was undoubtedly due to a change in one or more of

(Concluded on page 29)

Editorial Contents

Present Day Viewpoint Toward Bud Selection and Rootstocks, by C. E. Durst.....	3
Citrus Fruit Growing in South Africa, by H. Clark Powell....	4
Insuring Against Failure of the Orchard, by V. R. Gardner....	5
Rambles of a Horticulturist, by C. E. Durst.....	7
A New Method for Treating Foot-Rot, by Arthur S. Rhoads....	7
Peaches and the Peach Industry—Fifth Installment, by H. P. Gould.....	8
Birthplaces of Famous Apples, by Malcolm Grant Hitchings....	8
Growing Pomegranates for Market, by Robert W. Hodgson....	10
EDITORIAL.....	6
Vote as You Please, But Vote—Support National Apple Week—Why So Much Inconsistency?—Why Do They Do It?—A Disadvantage of Monopolistic Control.	

DEPARTMENTS

The Editor's Mail Box.....	12	Chats with Fruit Grower's Wife.....	24
With the Co-ops.....	14	Patterns.....	26
Markets and Marketing.....	16	Engineering for the Fruit Grower.....	27
The Orchard Home Department.....	22	Beekeeping for Fruit Growers.....	28
		Profitable Poultry.....	30

Citrus Fruit Growing in South Africa

By H. Clark Powell

Transvaal University College Experiment Station

CALIFORNIA and Florida have long been supreme in the field of citrus fruit production. The average person in the United States considers South Africa merely as an outpost of civilization, inhabited by a few whites (chiefly missionaries) and millions of natives. This idea of the country is totally erroneous, as can be learned from a glance through this brief article on the citrus industry of the country. For example, the largest orange grove in the world is not in California or Florida but in South Africa. The Zebediela Citrus Estates, in the Transvaal, have 7000 acres planted to Valencia and Navel oranges, and will probably extend in the near

The chief citrus fruit grown in South Africa is the orange; it is useless to produce lemons for export because of the competition in the European markets with the enormous output of lemons from Italy and Sicily. The export of naartjes (the local term for tangerines) is growing rapidly. The last three years have seen a tremendous increase in the production of grapefruit, and this increase will undoubtedly continue. The use of grape-

Washington Navel, with some Du Rois, Mediterranean Sweets and miscellaneous varieties. Much trouble has been experienced, particularly in the Transvaal, with excessive dropping of the bloom and young fruits of the Navel. This is the June drop of California but in South Africa, as the seasons are reversed, it occurs in September, October and November. It is interesting to note that this is not as serious in the region near Port Elizabeth. In that district the influence of the sea undoubtedly has a beneficial effect upon the bearing of good crops by the Navel trees.

In the Transvaal the Valencia has proved to be the most satisfactory variety, but just the opposite condition exists in the eastern Cape.

The best grapefruit come from the eastern Cape, particularly from the Sundays River Valley. There are a few extensive plantings in the Transvaal but the results obtained are not of the most satisfactory nature. The chief varieties planted are the Marsh Seedless, Triumph, Pernambuco, Foster and Cecily. The latter is a new seedless variety which was found by chance in a shipment of trees from Reasoner Brothers, Florida, to Sir Percy FitzPatrick, Uitenhage, Cape Province. Trees of this new variety have been sent to the United States for trial there; the name has been officially recognized by the American Pomological Society.

Better Understanding of Citrus Needed

Conditions in the industry as a whole have not been very satisfactory. The large plantings which have been set out in the last few years have largely been cared for by novices. There are few people in the country who have any scientific training in citriculture, and this lack of experience and availability of sound advice has made itself all too prominent. The recent visit of Dr. H. J. Webber, director of the Citrus Experiment Sta-

black scale is not a serious pest in any way, as it is kept under complete control through the agency of natural parasites. When the scale was inadvertently taken to California, the natural parasites were not included, and in consequence it spread rapidly through the California groves. The Florida red scale (circular purple scale) and oyster shell scale are also common. As in California, fumigation has proved to be the best means of control.

Diseases Plentiful

In regard to diseases, South Africa is quite well supplied. Brown rot, collar rot (mal di gomma) and scaly bark do considerable damage. Collar rot is by far the worst disease. Scaly bark was first noted a few years ago and has spread rapidly. A program of compulsory eradication (with government compensation for trees which would be destroyed) is being seriously considered at the present time. Citrus canker broke out a number of years ago, having gained entrance with trees from Japan, but is now completely under control. When the seriousness of the disease was realized, the government instituted a campaign of eradication and destroyed all infected plantings. The areas which were originally infected are still under quarantine.

Another problem of first magnitude is that concerning individual tree performances. Nurseries have turned out hundreds of thousands of trees, the buds of which were taken regardless of the character of their parent tree. As no tree records have been kept, until very recently, one would expect that a great many trees have been planted which are off-type or are low-producers, and such is most assuredly the case. Most of the nurserymen and growers realize the urgency of bud selection and are taking steps at present to see that it is carried out.

Shipping Problem An Acute One

The shipping problem is very acute. Transvaal growers must rail their fruit from 700 to 1000 miles to the coast; then the fruit must travel another 6000 miles before it reaches England. This past season about 1-



Five-year-old orange trees growing on the Zebediela Estates

future to 10,000 acres. If I remember correctly, the largest place in California is the Limoneira Ranch, consisting of less than 2500 acres.

Introduced from St. Helena

Oranges were brought to South Africa in 1654 from St. Helena, but the commercial industry is of very recent origin. Commercial fruit growing in this country, for export, dates from only 10 or 15 years ago, and its development has been due, aside from the suitability of climatic and cultural factors, to the inauguration of fast, refrigerated steamships plying between South Africa and England, and probably above all else, to the remarkable prominence and success of California in fruit growing.

South Africa is a federation or union of four provinces or states, the Cape of Good Hope, Natal, the Orange Free State and the Transvaal. The total area is 473,096 square miles, the white population equalling 1,600,000 and the native, or black, population equalling 6,000,000.

The rainfall varies greatly in different parts of the country, in some places being only four or five inches a year, while in others it is 70 or 75 inches. A distinct handicap is the fact that the rainfall in a given area is extremely variable, there usually being a year of drought followed by a season of very heavy rains.

Three Climatic Divisions

The Union is of three distinct climatic divisions: we have the high veld, or country above 4500 feet, in which severe frosts occur in winter; the middle veld or country from 2000 to 4500 feet has a mild climate similar to that of southern California; the low veld, or Bush Veld, is more of a tropical nature and is suited to citrus growing, although the prevalence of malaria and intense summer heat are severe drawbacks. It is in the middle veld that we find the most suitable conditions for orange growing, although there are extensive plantings in the Bush Veld.

fruit as a breakfast fruit has increased about 200 per cent in the last few years in England. This has been due in a large measure to the influence of American tourists in Great Britain.

Exports Increasing

The increase in exports of citrus fruits and plantings of citrus trees can be readily seen from the tables given herewith. The figures regarding citrus trees are the latest available; considerable planting has occurred since these were obtained, and it would probably be quite safe to say that there is a total area of about 50,000 acres planted to citrus fruits in South Africa.

CITRUS EXPORTS FROM UNION OF SOUTH AFRICA.

	1910.	1921.	1924.
	Boxes.	Boxes.	Boxes.
Oranges	10,387	229,161	444,366
Lemons			11
Grapefruit		2,820	19,383
Naartjes		22,236	50,000

*Approximately.

CITRUS TREES IN UNION OF SOUTH AFRICA.

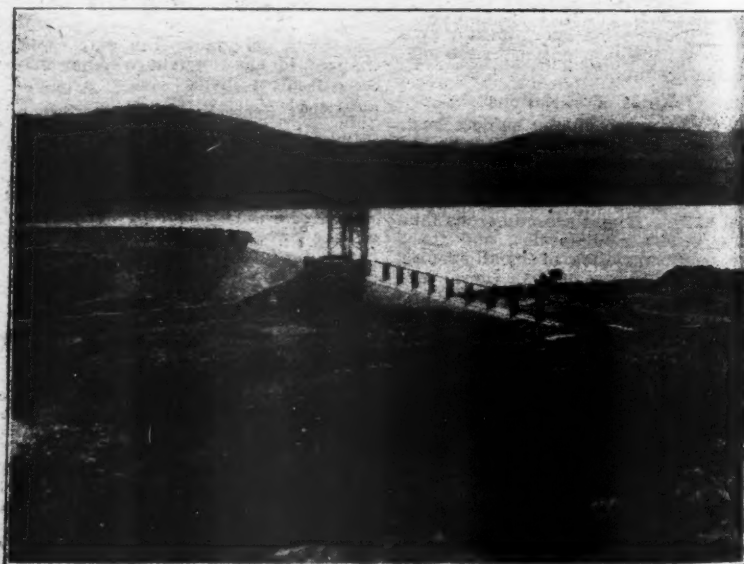
Farms Only—August 31, 1925.

	Bearing.	Non-bearing.
Orange, budded	961,150	1,510,370
Orange, seedling	375,950	112,320
Total	1,337,100	1,622,690
Naartjes, budded	110,940	341,740
Naartjes, seedling	124,530	50,970

During the past season over 1,000,000 cases (California standard box is used here) were exported and for the coming season a proportionate increase is expected. An export of 5,000,000 cases a year will be attained in the very near future, at least by 1930. Thus, in 10 years (1921-30) the orange export will have increased about 1000 per cent.

Largest Acreage in the Transvaal

The bulk of the citrus planting is in the Transvaal, although a considerable acreage exists in the eastern portion of the Cape Province. As can be seen from the tables, there is a general drawing away from seedling trees. The chief varieties at present, with oranges, are the Valencia and the



Compleat Dam located on Zebediela Estates, the capacity of which is 1,500,000,000 Imperial gallons

tion, Riverside, Calif., has done much to bring before the growers the importance of developing the industry on sound lines.

Among the outstanding problems to be met at present is the control of the insect pests and diseases. It is interesting to note that these are practically the same as in California. The worst insect pest is the California red scale. One of the worst in California is the black scale (*Aspidiotus olea*), which, by the way, was introduced there from South Africa. Here the

200,000 cases were sent to the coast and of this quantity, 110,000 were rejected by the port authorities as being unfit for export. An excessive amount of decay in transit occurred this season, many shipments showing as high as 50 per cent waste. The writer is firmly of the opinion that at least 75 per cent, and probably more, of this decay is due to careless handling and improper packing. A certain amount of loss has resulted from shipment of over-mature Navels and poor condi-

(Concluded on page 21)

Insuring Against Failure of the Orchard

By V. R. Gardner

Michigan Agricultural Experiment Station

IT HAS BEEN said that heroes are born, not made. It may be stated with equal truth that the success or failure of an orchard enterprise depends on what the grower starts with, not on what he does afterwards. Both statements tell about two-thirds of the truth.

A careful field study was made of 100 commercial apple orchards in the so-called "fruit belt" of Michigan. They were located throughout the area between the Michigan-Indiana line and Traverse City, a distance of 250 miles. Some were small, some large; some constituted the main source of income for the farm; and others, though operated on a commercial basis, were obviously side lines. Their variety lists included everything from the old time Rambo to the modern Delicious. They ranged in age from trees just coming into bearing to plantings 70 years old. They were on all kinds of soils. Some were under a sod system of management; others were in cultivation. Pruning varied from none at all to what would be considered rather extreme in amount. In brief, they were a good random sample of the apple orchards of the state, so selected as to afford a fair cross section of the industry.

Yield, Grading and Sales Records Obtained

Through the courtesy of the growers themselves and of the co-operative organizations through which they sold their fruit, yield, grading and sales records covering a five-year period were obtained. Weather conditions during this period were average. It included some heavy and some rather light crop years, and seasons of high, low and average prices. The figures that were obtained, at least their averages, therefore reflect normal conditions and indicate about what may be expected over another period of similar length.

The Premium that is Paid for Variety

The average A-grade price received for the best 10 varieties (from the standpoint of price) was \$1.60 per bushel; the average for the poorest 10 was \$1.08. One grower's five-year production of A-grade apples was 4120 bushels, and it brought him an income of \$6280; another grower's production of 4328 bushels of the same grade brought only \$4750.80. This grower now realizes he should not have let the tree agent make out his variety list. He is grafting over his trees to varieties for which the market is willing to pay a premium.

The Premium that is Paid for Grade

The average price that all these growers received for their A-grade apples of all varieties during this five-year period was \$1.29; for their B-grade product they received 93 cents per bushel; and 22 cents was received for what found its way into the cider barrel. Grower No. 66 averaged just \$1.12 per bushel for his "tree-run" product throughout this five-year period. This was for his unpacked fruit, all handling and package charges being assumed by the selling organization. In other words, that was what he got for just growing and picking his apples. Grower No. 94, one of his neighbors, averaged 58 cents per bushel for his product, a price that probably left little if any margin above production and harvesting costs. The first figure netted the owner a good profit. These two growers were exceptions only in the sense that they are here contrasted with each other. Many others had grading-out records equal to that of No. 66; not a few had records like that of No. 94.

Why the Cull?

What is responsible for these individual differences in grade? To answer this question, the orchards of the 10 growers among the entire 100 whose five-year grading records were the best, and likewise those of the

10 whose grading records were the poorest, were visited. Their soils were examined and notes were taken on topography of land, exposure, air drainage and kind and amount of pruning. Through talking with their owners, information was obtained on tillage methods, fertilizer applications and spraying practices during recent years. In short, these selected orchards were studied and classified from the standpoint of every major environmental factor and cultural treatment that conceivably might be responsible for the differences in their grading records.

The main difference between the orchards that produced low and those that produced high-grade crops, a difference that stood out so distinctly as to be unmistakable, was in vigor. Without exception, the trees of the high-grading orchards were vigorous and thrifty; those in the low-grading orchards were weak or at best below

of grade of fruit from these particular orchards.

In brief, it may be said that, provided the trees are well sprayed, grade is largely determined for the life of the orchard when the field is selected in which the trees are to be planted. This statement is not made for the purpose of encouraging growers to neglect tillage, pruning, fertilizing, spraying, thinning or other orchard operations. Those practices have their place, but the evidence shows that they cannot take the place of a good soil or compensate for a poor one.

Big and Little Crops

Even more striking than the differences between the high and the low-grading orchards were those between the ones that yielded heavily and the ones that yielded poorly. It is almost unbelievable that trees in orchards



Notwithstanding good management and a frost-free site (Lake Michigan is just over the bluff in the background), this 40-year-old apple orchard is a commercial failure because the soil is not adapted for fruit production. The trees have averaged less than two bushels of fruit a year and the apples have been of poor grade.

medium. Sometimes these differences in growth were correlated with age of the tree; more frequently they were associated with differences in the soil. Soils that were deep, strong, fertile and well watered were producing high grade fruit; soils that were thin, light and infertile and droughty were yielding little—and that little was poor in grade because small in size. In some cases, liberal applications of nitrogenous fertilizers and intensive culture were helping these lighter soils to produce a good grade product, but such instances served only to emphasize the importance of soil in determining grade.

No Correlation Between Pruning Methods and Grade of Fruit

Contrary to what was expected, no correlation was found between grade of fruit and amount or kind of pruning. There were well pruned, poorly pruned and unpruned orchards in the high-grade group, and every pruning style represented in this first group was found in those orchards whose product had consistently been low in grade. Nor was it possible to differentiate clearly between the spraying practices that had been employed in these high and low-grading orchards. All the orchards had received four or more applications per season. It was evident that the commercial apple grower in Michigan is thoroughly sold to the idea of spraying. He uses standard materials and attempts to follow the recommended spraying schedules. However, the evidence indicates that in some instances applications had lacked thoroughness or were not timely. Improvement in these respects without doubt would have resulted in a distinct bettering

furnishing the principal income of the farm 25 or more years old would average less than six bushels of fruit per tree annually over a period of years. Yet such was found to be the case. The total five-year crop of one block of 200 50-year-old Baldwin trees was only 1859 bushels, or about a bushel and three pecks per tree annually. One block consisting of 20 15-year-old and 40 40-year-old Duchess trees produced less than 50 bushels of apples a year. Another orchard of 749 21-year-old trees averaged only two bushels per tree annually during the same period. Confronted with these actual yield records, the owners themselves found them hard to believe. Unconsciously, they rated their trees on the basis of their heavy crop-year production, ignoring the seasons of crop failure, the "off-years," and their influence on average returns. On the other hand, contrasted with these low yield records were many exceptionally good ones. One block of 300 40-year-old Baldwin trees during this same period produced 21,570 bushels of high-grade fruit that returned to the grower \$24,819.03. Two hundred Duchess trees in another orchard averaged six bushels per tree annually for five years, beginning with its fourteenth year. At prevailing prices, grower No. 47's orchard yielded him an average annual income of \$35 per acre; No. 33's orchard brought him an annual return of \$404.50 per acre. The varieties were the same and so were the ages of their trees. The difference was one of yield.

What Makes Trees Yield?

When the orchards that showed these great variations in yield were visited in an attempt to determine

the factors responsible for the situation, some surprises were met with. For it was expected that great differences in cultural practices would be in evidence. Such was not the case. The differences in cultural treatment between the high yielding and the low yielding orchards were negligible. Both groups had been reasonably well sprayed. Some in each group were in sod; some were under cultivation. Some in each group had been well pruned, some poorly pruned, and others practically unpruned. Fertilizer treatments varied greatly within each of the two groups but not between them. The big outstanding difference between the productive and the unproductive orchards was in their location. Those yielding heavy crops year after year, those with a high average, were on high ground possessing excellent air drainage. They were thus insured against injury from ordinary frosts that ruined the crops in orchards less favorably located. Few plantations on relatively low ground, in frosty locations, showed average yields above the mean for all orchards, though in favorable seasons some of them produced heavy crops.

A good location, however, does not guarantee big yields. As with grades, there was a marked difference between the trees themselves in the two groups. The high yielding trees were strong, vigorous and thrifty. The trees of many of the low yielding orchards were lacking in vigor. Correlated with and responsible for these differences in tree growth and productivity were differences in soil—its depth, fertility and water-holding capacity. Without exception, the productive trees were on good soil. However, good soil in a poor location was only able to grow good trees, not heavy crops.

Writing the Insurance Policy When the Orchard Is Planted

The combination of a favorable location and good soil, together with reasonably good management, resulted in both heavy yields and high grades. Grower No. 70 possessed such a combination. His orchard contained good varieties. His management was good, though not exceptional. He has been making money. He could hardly help it, for he had the right conditions. On the other hand, the combination of a poor location and a poor soil, even with good management, invariably resulted in light yields and low grades. Grower No. 75 possessed this combination. His varieties were good and his management methods have been at least fair. His average annual yield from his 45-year-old trees has been less than three bushels, and less than 40 per cent of his crop has been of A-grade. His average annual return has been \$1.37 per tree, \$48 per acre. Out of this he has had to pay taxes and insurance, labor and supply bills, and he has had to harvest and haul his fruit to the packing house on the railway siding. If he were in debt for the farm, he could not meet the interest on his note at the bank. He has been playing a losing game. He may not be quite so good a grower as No. 70, but the difference between them is not so great after all. He is handicapped by a set of impossible conditions. He is simply up against it, with no apparent way out.

Choose the Right Things to Grow and Grow Them in the Right Place

There are many No. 70's in the orchard business, and also many No. 75's—or, more accurately, there are many growers with No. 70 orchards and many others with No. 75's. The No. 70's don't need to be told to stay by their guns. They have a good thing and know it. What the No. 75's should do is also reasonably clear. What those whose orchards are in between should do is perhaps more puzzling. For the person who is contem-

(Concluded on page 24)

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Vote as You Please, But Vote

IF YOU don't like the way this country is run, why don't you do something about it? If the people who are running things now are falling down on the job, whose fault is it but yours? Did you not elect them in the first place? Now, if you want to have something to say about how our affairs are to be run in the future, why not go to the polls on election day? If you don't and things don't go to suit you, don't blame anyone but yourself and others like you who were too indifferent to bother about voting. Presumably everyone wants good government. Let's do our part as individuals and if things go wrong, at least our consciences will tell us that we did our duty.—Farm Bureau Monthly, Los Angeles County, California.

Support National Apple Week

SATURDAY, October 30, will be National Apple Day, and the week between October 30 and November 6 will be National Apple Week. This movement, started by Capt. James Handley, of Quincy, Ill., 21 years ago, has grown steadily in popularity, and now the idea is being supported by numerous interests connected with the apple industry. Special organizations have been formed for boosting apple consumption, and much good along this line is being accomplished.

Our plea to apple growers everywhere is that they join in this movement and give it their hearty support, financially and otherwise. The plans of most of the organizations are well intended and apparently are being carried out honestly and efficiently. The organizations deserve the membership and financial support of growers as well as dealers. An increase in the consumption of apples will help all parties concerned.

The growers' interest, however, should not stop with financial support. While the organizations are rolling the ball for the promotion of apple consumption, growers should join in with their utmost moral support. Talk apples everywhere you go; spread the gospel in the small towns and among general farmers as well as among the inhabitants of large cities. These folks, as a rule, consume small quanti-

ties of apples. When you visit your friends, or when they visit you, tell them about the edible and health qualities of apples. Combined action along this line by growers will add greatly to the influence which will be exerted during National Apple Week and during the remainder of the season. Such action will help materially in moving the large apple crop of the present season.

Why So Much Inconsistency?

ASSISTANT SECRETARY of Agriculture R. W. Dunlap, speaking before the Vegetable Growers' Association of America, proposed a new plan for relieving the situation of agriculture. He suggested that the government purchase some of the marginal land on which crops cannot be grown profitably at the present time. The retiring of such land from productive operations would decrease production and tend to strengthen agricultural prices. Mr. Dunlap stated that the proposition would probably be made the subject of a bill that would be introduced at the next session of Congress.

Mr. Dunlap's proposition probably has considerable merit. There is no question but what, due to the needs of the war and the promotion schemes of outside interests, much land has been brought into cultivation that should have been left alone. Of course, in the working out of such an idea, some difficult questions would arise. For instance, who would decide where the marginal land would be purchased? What would be paid for it? There would probably be opportunity for the display of political maneuvering, the establishment of pork barrels, etc.

But the thing that struck us as peculiar about Mr. Dunlap's idea is the inconsistency which prevails between it and the administration's waterway plans, as recently outlined by Mr. Hoover. Mr. Hoover named several large projects, the development of which would increase tremendously the amount of cultivated land and which, therefore, would increase the production of agricultural crops. Now Mr. Dunlap, another member of the administration, comes along with a proposition which would decrease the acreage of cultivated land and thereby lower the production of agricultural crops.

There ought to be more consistency in the plans of government officials who go out and present proposals to the public, and there would be if the administration at Washington had any very well defined plans in view for the relief of agriculture.

Why Do They Do It?

THE OTHER DAY we had a most interesting conversation with a fruit grower who called at our office. This man is no ordinary citizen. He is a well posted man and holds a good position.

He told us he was interested in a fruit proposition with several other men. During the past season they sold practically their entire crop through a dealer in the East. They supposed he was an efficient and responsible dealer, and apparently they neglected to look him up carefully.

The result was exactly what one would expect. The season's returns were very disappointing. At the present time the men are investigating the matter with the thought of possibly attempting to recover their losses. They have found that the dealer, instead of being one of standing and responsibility, simply runs a small retail store in Connecticut and that he operated an office in New York City for handling the deal.

Things like this are happening in thousands of instances. Through pride, most of the victims do not tell of their experiences. If we could but know the number of growers who

deliberately place the marketing of their products in the hands of persons whose efficiency and honesty they know nothing about, we should all be very much surprised.

In the instance cited, a good co-operative exists in the territory of the orchard. Why these men failed to market through the co-operative is a matter we cannot understand. Co-operative marketing is especially well adapted to such undertakings as theirs.

The selection of a good marketing agent is about half the problem in successful fruit growing. In view of all the trouble that growers go to in producing the crop, it seems reasonable to believe that they would select their marketing agents with extreme care. However, it is a fact that many growers select their marketing agents very carelessly. There are so many ways nowadays in which the record and standing of a man can be obtained that there is no excuse for taking such chances.

A Disadvantage of Monopolistic Control

SEVERAL leading co-operative associations have changed their viewpoints during the last two or three years in regard to the advisability of having monopolistic control of the crop. In the early development of some co-operatives, the leaders thought it imperative that large control of the crop of the district be obtained. It was only by such means, they believed, that the co-operative would influence prices and work out the best distribution plan.

When such co-operatives got into operation, some unforeseen difficulties were encountered. At best, there were always a few growers outside the association. There were numerous buyers who would not buy from the co-operative, except as a last resort, preferring to pay a premium to the individual grower rather than buy from the organization. With only a small tonnage outside the association, and many buyers in the market for such fruits, the demand would be strong and the supply short, and good prices would be paid. Such independent growers not infrequently received higher prices than the association, especially when the association merchandised its products gradually in accordance with demand. Furthermore, the non-members received free of charge all of the price influencing benefits resulting from the operation of the association. As a matter of fact, there are several examples on record in which a small minority of non-members received almost regularly larger returns than members. Such conditions discourage the development of co-operatives, for many growers do not understand the factors lying at the bottom of such a situation.

While rather large control is still considered a good thing, several of the former monopolistic-minded co-operatives have abandoned their viewpoints about monopolistic control. Many now believe that 60 to 70 per cent control is in some ways superior to 90 to 95 per cent control. When only 60 to 70 per cent of the products of the district are controlled by the association, there is sufficient tonnage outside to satisfy all the anti-co-operative buyers and keep them from paying exorbitant prices. The question of comparative returns then resolves itself into one of efficiency. When the situation is reduced to this basis, a well operated association can always give a good account of itself. Several co-operatives who formerly enjoyed 90 to 95 per cent control of the crop in their territory are now operating under a 50 to 70 per cent control and have a better satisfied lot of members.

Gardner's article on page five is a real contribution—be sure to read it.

Rambles of a Horticulturist

By C. E. Durst

IT WAS my pleasure and opportunity to visit most of the important fruit sections of Washington with the American Pomological group this summer. This state is now the leading apple producing state of the country, and it grows a large assortment of other fruits as well. Growers in other sections will find it to their advantage to inform themselves thoroughly regarding the industry in this state.

As early as 1919, the value of the fruits and nuts grown in Washington was \$51,662,307. The volume of production for that year as shown by the United States census, was as follows:

PRODUCTION OF FRUITS IN WASHINGTON, 1919.	
Apples, bu.	21,568,691
Peaches, bu.	1,544,859
Pears, bu.	1,728,759
Plums and prunes, bu.	785,920
Cherries, bu.	249,226
Apricots, bu.	79,908
Grapes, lbs.	3,961,036
Nuts, total lbs.	108,178
Strawberries, qts.	6,377,368
Raspberries, qts.	4,595,678
Loganberries, qts.	1,157,778
Blackberries and dewberries, qts.	3,691,065
Cranberries, qts.	585,221
Currents, qts.	254,959
Other berries, qts.	218,673

Clarke County

My first visit was to Clarke county, located in southwestern Washington. This county produces practically all of the Italian prunes grown in the state, the crop of the county amounting to 10,000,000 to 15,000,000 pounds of dried fruit a year. Most of it is handled by the Washington Growers' Packing Corporation. Clarke county also grows considerable quantities of peaches, pears and apples. Small fruits, especially strawberries, are grown in quantity. The walnut industry is growing rapidly.

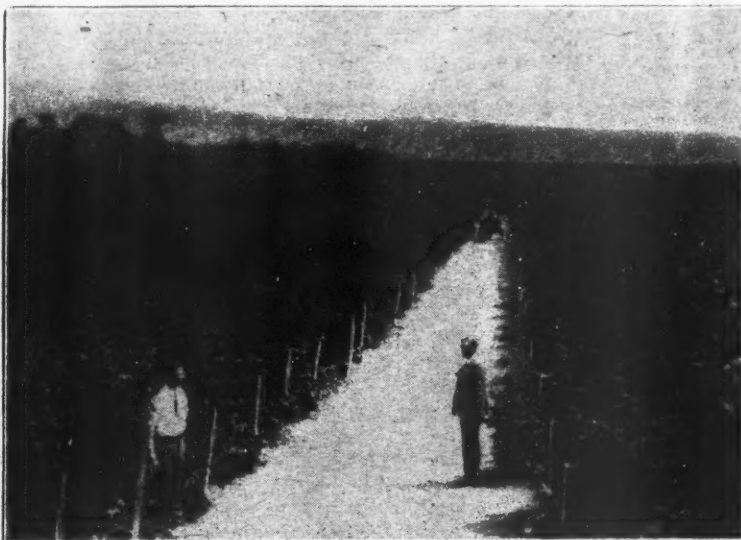
The section receives ample rainfall and no irrigation is necessary. The agriculture is quite diversified. Prune drying equipment is sufficient for handling large crops. A great many of the small fruits are preserved by the freezing method, being stored in Portland cold storages. The members

of the Vancouver Chamber of Commerce conducted us about this county in automobiles. I rode with H. W. Wood, manager of the Washington Growers' Packing Corporation, who gave me much valuable information.

Meeting of the Horticulturists

The horticulturists, pathologists and entomologists of the Northwest were holding an important meeting at Tacoma. Most of our members attended one session of this meeting, at which there was a thorough discussion of oil sprays. Representatives of commercial concerns were present, as well as college and station men. Many present reported favorable results

from the oil sprays. After the question was fully discussed, the majority of the station men present seemed to feel that one of the greatest needs at present is a more thorough understanding of oils, particularly with reference to foliage injury and insect destroying properties. While some important progress has already been made, it was felt that faster and surer progress would be made after such fundamental information is at hand. A movement is said to be on foot whereby the Standard Oil Company will furnish three basic oils for investigation. In all probability these will be thoroughly investigated by the experiment stations of the Northwest.



General view of the 60-acre red raspberry plantation of W. E. Turner in the Puyallup Valley. Prof. C. L. Burkholder of Indiana and A. T. Henry of Connecticut are in the foreground.

Favorable reports for the most part were made in regard to Volck, a product manufactured and sold by the California Spray-Chemical Company. The material is apparently giving good results in the control of red spider, leaf roller, scale and codling moth. Questions were raised by some of those present as to whether the oils would interfere with color development and also as to whether they could be depended upon alone for the control of codling moth.

The Puyallup and White River Valley

Our party had the opportunity while in this vicinity to visit the famous berry section of the Puyallup and White River Valley. This section has the reputation of being the best berry producing section in the world. None of us raised any question about this point after seeing the plantations and sampling the products. None of us had ever seen braubles grow so luxuriantly.

The Puyallup section is only about 15 miles long and four to five miles wide, located east of Tacoma in Pierce and King counties. These two counties had, in 1924, 2250 acres of raspberries, 900 acres of blackberries, 500 acres of strawberries and 730 acres of Loganberries. Some gooseberries and currants are also grown. An idea of the relative productivity is indicated by the fact that these two counties produce about one-tenth of the raspberries and blackberries grown in the United States on about one-thirtieth of the land devoted to these crops.

The success of the industry is due to a particularly adaptable climate, accompanied by good soils. The rainfall is 40 to 45 inches a year and irrigation is unnecessary. Most of the rain falls during the winter, and a long, dry spell during the summer is the usual thing. The dry spell furnishes good conditions for picking and handling the crop. The temperature does not go high during the summer, and the atmosphere is quite humid, due to the moisture brought in by

(Concluded on page 20)

A New Method for Treating Foot-Rot

By Arthur S. Rhoads

Florida Agricultural Experiment Station

THE STANDARD method to date for the treatment of citrus trees attacked by foot-rot has consisted in the clearing away of the soil from about the root-crown and main roots, followed by the cutting out of all diseased bark back to healthy bark and the application of some good antiseptic, such as Bordeaux paste, to the wounds thereby made. After this, it was recommended that the crown roots be left exposed for several weeks if there was no danger from cold.

Removing the soil to expose the root-crowns and main roots for surgical treatment is often an extremely laborious and tedious operation, especially where large seedling trees are involved. Where a number of such trees are to be treated, a large amount of time may be saved by washing the soil away from the roots with water under pressure. This may be accomplished where an irrigation system or artesian well is available and capable of delivering a stream of water under considerable pressure through a hose, or by using one of the leads of hose on a power spraying outfit, first disconnecting the nozzle or substituting a disk with a large hole to replace the regular disk. After the soil is removed, the exposed root-crowns and main roots may be sprayed with thin Bordeaux paste after excision of the areas of diseased bark.

New Method Studied

These methods are excellent and are unsurpassed by none for the timely treatment of foot-rot. However, during the fall of 1925 the writer had the opportunity of studying a radically different method of treating foot-rot that is just

the reverse of the usual method of exposing the diseased root-crowns to the air and sunlight. This method was tried by Dr. A. J. Hannah in his grove at Umatilla. Here several old

seedling orange trees that were so badly girdled from foot-rot that they were nearly dead, were merely banked with clay to stimulate the development of a new root system. As the



Seedling orange tree that was boxed and banked with clay five years ago, when nearly completely girdled by foot-rot. Note the extensive development of new roots above the base. The hole in front of the trunk at the left marks the place where an old trunk died and rotted out.

accompanying illustration shows, a rough box was built about the base of each tree treated and this was filled with about two wagonloads of clay, the box being used merely to better retain the soil about the base of the tree. As can be seen from the photograph, a number of large roots were developed above the girdled portion of the trunk during the course of five years following the banking. The photograph on page 24 shows in more detail how a number of roots have developed from the margin of the callus formed above the girdled trunk. This tree probably has been banked only about two years. At the time Dr. Hannah's grove was visited, all of the seedling orange trees so treated had good, healthy, normal looking tops and were bearing good crops of fruit. The use of clay is by no means necessary for banking such trees, but clay will remain in place better than sand and will prove more retentive of moisture.

Citrus Develop New Roots Readily

One of the remarkable characteristics of citrus trees is the readiness with which they may be induced to develop new roots. A number of instances are on record in Florida where a profuse new root system developed above the normal one in cases where the banks, for some unknown reason, had been allowed to remain in place for two or three years. In addition, instances are frequently seen where trees that were partially killed back in the freeze of 1894-95 have developed roots in the interior of the hollow left at the bases of the trees by the rotting away of the original trunk, es-

(Concluded on page 24)

Peaches and the Peach Industry

Fifth Installment—By H. P. Gould

United States Bureau of Plant Industry

IN THE last 15 or 20 years there have been some rather decided shifts in the geography of peach growing. Certain centers of large production within that period now ship very few peaches, while other sections have come rapidly to the front in relative importance. This, however, is history repeating itself, for such shifts have characterized the peach industry ever since those earlier days when New Jersey, Delaware and the eastern shore of Maryland represented the recognized peach growing region of the country.

The Variety Situation

Stability in the varieties of any kind of fruit is hardly to be expected, particularly in the case of a fruit like the peach, which is grown easily from seed and which has a wide geographical distribution. While new varieties are introduced to the trade every year, they are usually rather slow in making headway, unless they possess extraordinary merit. Even then rapid recognition is unusual unless they are brought emphatically and intensively to the attention of the growers through extensive advertising.

It would be difficult to enumerate the names or even estimate the number of varieties now being offered to the trade, but there are surely several hundred of them. There is a great quartet of varieties, however, that stands in much the same relation to the general run of varieties that a quartet of outstanding highly trained soloists hold to the rank and file of a volunteer chorus. That quartet of peaches consists of: Carman, Hiley (Hiley Belle), Belle (Belle of Georgia) and the Elberta, ripening in the order named. A "chorus" of other varieties is grown, and they may help the quartet some, but as a poor, untrained singer may throw an artist into high relief by contrast, so the merits of these four peach varieties may be accentuated somewhat by comparison with many of the other sorts with which they are grown.

Most of the varieties ripening in advance of the Carman are so poor in dessert quality that they are disappointing at best. It is doubtful

whether the shipping of them does not depress the market for the better quality sorts that begin with Carman. There are other varieties of merit, but in a marked degree they ripen with or after these particular four sorts. In the North, the Champion may take the place filled otherwise by the Belle. The J. H. Hale, which stands nearly if not quite alone in being a self-sterile sort, has its place, but it apparently does not have the remarkably wide range of adaptability of the Elberta. The Brackett and Wilma are contending somewhat for a place just after the season of Elberta. Michigan has a list of varieties quite largely its own, though many varieties widely grown elsewhere are to be found to some extent in Michigan. Some of the sorts peculiarly characteristic of Michigan are: Engle, Kalamazoo, New Prolific, Gold Drop and South Haven; the latter has been only recently introduced and appears to be rather promising. Another group of rather special va-

rieties of long standing includes Smock, Salwey, Heath (Heath Cling or White Heath) and Bilyeu. These are all late sorts, the most of them rather widely distributed, but not grown in very large quantities. They close the peach season and are valuable as late home canning sorts.

In California special purpose peaches are grown as in no other part of the country. For a long time Muir and Lovell have been the two great drying peaches there. Aside from these, and Elberta to a very limited extent, scarcely any other varieties are dried. Extensive acreages of the Muir and Lovell are planted expressly with drying in view. Other special sorts are planted definitely for canning. These are firm-fleshed yellow cling-stone sorts, such as Tuskena (Tuscan), Hauss, Orange Cling, Pelora, Phillips, and a few others in limited quantities.

As stated elsewhere, many other sorts are grown, some of which are mostly of local value, but the bulk of

the others produced commercially is relatively small compared with that of those named.

Present Day Sorts Compared with Earlier Sorts

New peach varieties, as already stated, are introduced every year, but not many of them ever make much of an impression on the industry. The "great quartet" of varieties—Carman, Hiley, Belle and Elberta—all of southern origin, and most of the other sorts of outstanding position in the industry have "held their own" and more in the trade as the industry has developed and expanded during the past 15 or 20 years.

A glance backward into some of the old variety lists is interesting by way of contrast with the present time. William Cox, author of "A View of the Cultivation of Fruit Trees and the Management of Orchards and Cider, etc.," published in 1817, characterized somewhat fully 38 varieties and illustrated 15 in line drawings. Of these 38 sorts, only four bear variety names that are at all familiar to present day growers. These are Oldmixon Cling, Oldmixon Free (which is given as Oldmixon Clearstone), Heath and Lemon. Certain other varieties named by Cox as Royal George, Columbia, Grosse Mignonne, Red Rarripe and perhaps one or two others have been cataloged by American nurserymen within the past 10 years, but the names are rather unfamiliar at this time.

Downing, in the edition of "Fruits and Fruit Trees of America" of 1849, described 79 peach varieties. This number includes many of those listed by Cox, though some 14 or 15 sorts discussed by the latter are not named by Downing. However, by Downing's time a number of sorts still very familiar had been introduced. Early Crawford, Late Crawford, Lemon Cling, Smock, and perhaps one or two others besides the still familiar varieties in Cox's list, date back to the middle of the last century and were known to Downing.

Coming down to the more recent period of Dr. J. J. Black, he mentions in his book, "The Cultivation of

(Concluded on page 23)



A successful peach orchard located on a good site

Birthplaces of Famous Apples

By Malcolm Grant Hitchings

NONE of the leading pomologists of the world has been able to state the name of the variety of apple that caused all of the difficulty in the garden of Eden. It might have been McIntosh, Greening, Baldwin, Northern Spy or even Ben Davis. Most students of apple nomenclature have a definite starting point for the main varieties tucked away somewhere in their minds. Few people have looked into the historical features of our main apple varieties. The author, after delving into several authorities, has discovered what is believed to be an authentic account of the founding of some of our commercial apples. There has been no attempt at grouping of the varieties—that is a separate task—but the various kinds are chosen with a view to those most in use today.

Baldwin

The Baldwin is perhaps the leading variety of the northeastern section of the United States and southern Canada. It is a standard fruit in American and export markets. The Baldwin sprouted as a seedling some time after 1740 on the farm owned by John Ball Wilmington near Lowell, Mass. It did not spread out of the immediate section for nearly half a century. Some time later the farm was bought by Mr. Butters, who gave this apple the name of Woodpecker, because he discovered that the woodpeckers frequented the tree. For awhile it was called Butters. Later a surveyor by the name of Thompson

interested Col. Baldwin of Woburn, Mass., in the variety. Col. Baldwin propagated the variety and disseminated it through Massachusetts. It was due to his interest and work with the variety that it became known and was named Baldwin. C. M. Hovey in "Fruits of America," 1851, says, "The Baldwin is the most popular apple of New England.... Several large and fine orchards are to be found in the vicinity of Boston, some of which produce about 1000 barrels of fruit every bearing year." The Baldwin was not introduced to any great extent into New York until after the middle of the nineteenth century. Now approximately 50 per cent of the apples grown in New York and New England are Baldwins.

Wealthy

Wealthy is a hardy fall variety adapted to colder climates, such as those of northern United States. This variety was originated as a seedling from seeds of the cherry crabapple which were planted by Peter Gideon on his farm at Excelsior, Minn. It has been widely spread throughout the United States and is considered the leading early fall variety of the dessert class.

Twenty Ounce

Twenty Ounce is a large streaked baking and cooking apple raised largely in western New York. It originated

in Cayuga county, New York, but was not brought out to any great extent until about 1840. It was named on account of its extreme size, although Downing in "Fruits and Fruit Trees of America," 1847, says that one of its synonymous names was Eighteen Ounce apple. Perhaps they grew smaller in those days.

Jonathan

One of the earliest records of the Jonathan apple is noted in an address of Judge J. Buel, of Albany, 1826, before the New York State Horticultural Society regarding valuable apples propagated in the state. It is listed there as Esopus Spitzenburg (New). Various authorities agree that it originated on the farm of Phillip Rick, Woodstock, Ulster county, New York. The original tree was known to be alive as late as 1845. It was spread under several names, such as New Spitzenburg, Esopus Seedling (it being a seedling of the Esopus) Ulster Seedling, Phillip Rick, King Philip, etc. These names died out and gave way to Jonathan, which it was called by Judge Buel in honor of Jonathan Hasbrouck, who first showed him the variety. It has now spread throughout New York and New England, where it does not attain great size. Its greatest value is in the Pacific Northwest and the Middle West, where it is grown extensively for fancy trade.

McIntosh

The McIntosh is very rapidly coming to the fore as one of the leading, if not the leading, variety of the East. It is a dessert and cooking apple of unsurpassed quality. Heavier plantings are being made yearly. This variety belongs to the Fameuse or Snow family and is believed to have originated from seeds of the Fameuse. It was found as a chance seedling on the old McIntosh farm, Matilda Township, Dundas county, Ontario, Canada. Alan McIntosh started to propagate the variety about 1870. It has now become an important commercial variety through parts of eastern Canada, New York, New England, Michigan, Bitter Root Valley region of Montana, Wisconsin, Idaho, Washington and British Columbia, while it is grown on a smaller scale in other states.

Gravenstein

The Gravenstein is an early fall apple grown extensively in California, with large plantings in Sonoma county. Commercial plantings are also found in New Jersey, Delaware, New York, New England and Nova Scotia. It is a high quality dessert and cooking apple. Authorities differ on the origin of the Gravenstein. C. M. Hovey in "American Fruits," Volume II, 1851, says, "The origin of the Gravenstein remains in some doubt. It is said to have been originally found in the Duke of Augustinberg's garden at Gravenstein, Holstein (Germany), and

(Concluded on page 18)

Small Fruits of New York

THE SEVENTH and last of the series of books on the hardy fruits published by the New York State Agricultural Experiment Station is now off the press. In this volume, which deals with the small fruits, Dr. Hedrick and his associates (G. H. Howe, O. M. Taylor, Alwin Berger, G. L. Slate and Olav Einset) have compiled a work of outstanding importance in the field of horticulture and one which promises to take its place in horticultural literature as the authoritative reference work on small fruit varieties, just as the other books in the series have for the tree fruits. The volume is of the same high standard of mechanical make-up as the other numbers in the set, and the numerous full-page color plates which illustrate its pages add much to the beauty and usefulness of the book.

Some idea of the scope of the treatise may be gained from the fact that descriptions are given for 708 varieties of raspberries, 193 varieties of blackberries, 48 varieties of dewberries, 183 varieties of currants, 244 varieties of gooseberries and 1362 varieties of strawberries. Space did not permit any discussion of cultural methods for the several small fruits, although it was felt that such discussion would add greatly to the value of the book.

In preliminary chapters to each section Dr. Hedrick discusses in his well-informed way the cultural and botanical development of each of the small fruits from the earliest recorded accounts down to the present time. It seems that the ancient Greeks and Romans, who were great connoisseurs of food, had little or no knowledge of the small fruits, although they had many good tree fruits. In fact, according to this account, the small fruits are comparatively newcomers in the field of plant husbandry.

Present-day varieties of red raspberries have developed from two wild species, one native to Europe and one found in this country by the early settlers. Black raspberries have come down from a wild native species, while the hybrid purple cane raspberries are the result of crosses between this black species and the two red species. Cultivated blackberries and dewberries, practically without exception, have been derived from wild native sorts. In the case of the other small fruits, including the currants, gooseberries and strawberries, we are indebted to Europe for many good varieties.

Interesting biographical notes on leading American horticulturists who have contributed to the development of the small fruits add materially to the book.

While "The Small Fruits of New York" will serve primarily as a reference work on varietal nomenclature, it will prove of immense value as a guide in selecting varieties for any given soil and climatic condition, as well as showing which varieties serve best for a seasonal sequence for home use or for market. In spite of the title, the information contained in the volume is by no means confined in its application to the boundaries of the empire state.

This book contains 614 pages and has 94 color plates. It may be obtained from the Public Printer, Albany, N. Y., at a cost of \$7.50.

Booklet to Promote Fruit Consumption

DR. HERMAN BUNDESEN of the Health Department of the city of Chicago has prepared a booklet dealing with fruits and vegetables from the standpoint of the diet. This booklet is to be widely distributed, especially among Chicago people, in the hope that it will help to improve the health of citizens. A total of 700,000 of these booklets will be distributed.

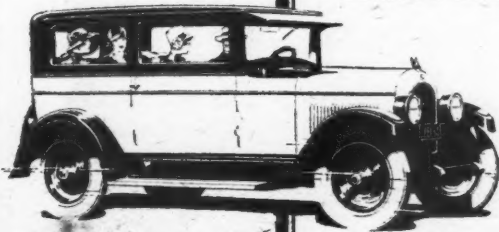
"Just think of it!" exclaimed Flora the romantic. "A few words mumbled over your head and you're married." "Yes," agreed Dora the cynical. "And a few words mumbled in your sleep and you're divorced."

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If you are attracted by the Chrysler "50" it is well to bear in mind that your choice, in any event, must be made among five cars. Only four four-cylinder cars other than the Chrysler "50" are now being built in quantity.

You will be rushed to a decision by the startling character of the contrast. The mere appearance and dimensions of the Chrysler "50" alone will startle you by comparison—its family seating proportions, its size, and its marked beauty of design, finish and fittings.

But the vital thing is the contrast in performance—the power and speed of 50 miles and more per hour; the acceleration of the Chrysler "50"—5 to 25 miles in 8 seconds; and above all, the ease with which it travels.

Never, it seems to us, was it so easy for the buyer to make sure that his money is buying the utmost as in contrast between the "50" and all others.

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Growing Pomegranates for Market

By Robert W. Hodgson
University of California

IT IS doubtful if any fruit industry in California, even excepting that of the grape, has undergone such rapid expansion as has occurred with the pomegranate, one of the most ancient of all fruits. According to a survey made by the writer in 1917, the acreage was between 125 and 150. A survey made last year showed that there were 1284 acres planted to this crop in Tulare county alone, which with additional plantings in other parts of the state made the total between 1500 and 1600 acres, an increase of approximately 1000 per cent in seven years. Another indication of the remarkable growth is furnished by the shipments for the last two seasons. These are variously estimated at from 150 to 200 cars as compared with a production of 15 or 20 cars a few years ago. And the end is not in sight, for of the present acreage in Tulare county approximately two-thirds is less than five years old, and shippers are already predicting an annual output of 500 cars within the near future.

With the exception of a few new plantings, including the largest in the state (280 acres in Kings county), practically all of the bearing acreage is located in Tulare and Imperial counties. At least 90 per cent of the production, however, comes from Tulare county, where soil and climatic conditions appear to be unusually favorable for heavy yields and splendid quality fruit. The total shipments from Imperial county have not exceeded five or six cars per season. While seedling pomegranates and some named varieties are grown as dooryard trees throughout the state, the Wonderful variety is the only one of commercial importance, and it appears to reach greater perfection in Tulare county than anywhere else.

Market Outlets

The average Californian, even though acquainted with this ancient fruit, has difficulty in believing that it is possible to find a market for 150 cars of pomegranates, and the question is frequently asked as to where the fruit is disposed of, who buys it, and how it is used. Fortunately for the California producer, however, there are a number of market outlets, the principal one of which is provided by the large foreign-speaking element, principally from the Mediterranean countries, located in the big eastern cities. New York in particular furnishes a large market for California pomegranates. The Mediterranean peoples have been accustomed to the pomegranate from infancy and in many cases prefer it to the usual American fruits and are willing to pay good prices for it.

The fruit is also in considerable demand for decorative purposes, being largely used on fruit stands and by fruit peddlers in the eastern cities. It adds materially to the attractiveness of gift boxes of assorted fruits and finds various other holiday uses. The shippers report a heavy demand from the Jewish quarters, where it is said the fruit is used in certain religious ceremonies, especially the celebration of the Passover or Yom Kippur.

Juice Has High Color

While in the past the preference has invariably been for the larger sizes, a rapidly increasing demand for the smaller sizes is believed to indicate its use for wine making purposes. Apparently this fruit has joined the list of so-called California "bootleg" crops, which use is supplying an outlet for the smaller-sized fruits. The high color of the juice is claimed to make the pomegranate a satisfactory substitute for the Alicante Bouschet grape. During recent years considerable work has been done in the development of pomegranate juice manufacture for the soft drink trade. The Division of Fruit Products of the College of Agri-

culture has demonstrated the feasibility of preparing pomegranate juice in both the natural and concentrated forms. On account of the high sugar content of the juice by means of concentration it can be preserved indefinitely. Small quantities of both the concentrated syrup and the juice are now being manufactured.

A carbonated beverage manufactured from the juice is now on the market and is reported to be selling quite well. The Bureau of Chemistry of the United States Department of Agriculture has also assisted in working out satisfactory processes for pomegranate juice manufacture.



A typical specimen of the Wonderful variety of pomegranate, as grown in California

nin. The juice is then sterilized and stored for clarification for 30 to 90 days. It is then either filtered or decanted and bottled ready for use.

Planted Mostly with Other Tree Crops

Most of the acreage occurs as mixed plantings with other tree crops, the principal combinations being with the olive, orange and grape. Much of the older acreage, however, occurs in the form of hedges and bor-

der rows, in which form the pomegranate demonstrated its adaptation to the soil and climatic conditions in Tulare county and proved its profit returning possibilities. In a number of cases the profits from border rows of

ardized, the practice has been to plant on the square system at distances of some 15 to 20 feet apart. On the basis of the behavior of the older trees, the latter distance would be necessary as at 15 or 20 years of age the trees reach considerable size.

Cultural Requirements

The cultural requirements of the pomegranate are relatively simple and the crop is not at all exacting in the care required for the trees to grow and fruit satisfactorily. Methods of cultivation and irrigation are similar to those employed in the citrus and olive orchards in the same communities.

The tree itself is remarkably free from serious pests and diseases. The damage from thrips exceeds that from all other causes combined. As with citrus, the thrip attacks both the foliage and fruit, causing characteristic distortions in both. Although no injury to the eating quality of the fruit is occasioned by this pest, the fruit is scarred and marked to the degree that its salability is reduced. Although productive of considerable loss, no attempts at control have been made, so far as the writer can determine.

Two Fungous Diseases Affect Fruits

The fruit itself is subject to two fungous diseases in the form of rots, which cause small losses, varying from year to year. These are known as "soft" rot and "dry" rot on account of the manner in which they affect the fruit. When the fruit is first picked, however, the general appearance of these diseases as they affect the flesh is quite similar and both are known at that stage as "black" rot. Both attack the interior parts of the fruit and until they have progressed to a considerable extent are not easily detected. They appear to gain entrance to the fruit either in the flower stage or while they are still small and immature.

The elimination of fruits affected by these diseases, of which the dry rot is much the more prevalent, is a difficult matter and requires considerable experience. According to the sorters in the packing houses, there are certain external indications upon which the presence of the diseases can usually be determined, but in the words of one of the principal shippers, "it requires an X-ray eye to tell a pomegranate affected with black heart." The soft rot, as the name implies, produces a soft decay of the fruit which usually shows up in transit, and while it results in some loss, the diseased fruit does not reach the consumer. On the other hand, the dry rot may not show up until the fruit is actually in the hands of the consumer. It is therefore much the more serious disease and constitutes a potential hindrance to the development of increased market outlets.

Splitting of Fruits Sometimes Serious

In some years losses are heavy from splitting of the fruits while still on the trees. This condition varies considerably from season to season and on the different types of soil. It is apparently much less prevalent on the dry bog adobe than on the red hardpan or other soil types where this fruit is grown. There appears to be some correlation between the amount of splitting and the occurrence of irregular moisture conditions in the soil. There also appears to be some foundation for the belief that there are strains which are much less subject to splitting than others.

Plants Trained to Tree Form

While most of the older plantings consist of bushes or hedges, in the more recent plantings the plants have been pruned largely to the tree form. The plant is naturally a large bush and to force it to take the tree form

(Continued on page 26)



Picking pomegranates in an orchard located near Porterville in Tulare county

The principal method in use at the present time consists in crushing the whole fruit, the average yield of juice being about 80 gallons to the ton. Since the rind contains from eight to 10 per cent of tannin, it is necessary to remove this by treatment with gelatine, which precipitates the tan-

pomegranate trees were such as to cause the owners to pull out their citrus and olive trees and replant with pomegranates, and nearly all of the newer acreage is set out in orchard form.

Although planting distances in solid plantings have not yet been stand-



Packing Wonderful pomegranates in the Rosecrest Fruit Exchange plant at Porterville, Calif.

Coming Horticultural Meetings

ANNUAL meeting Minnesota State Horticultural Society, St. Paul, November 9-12. Secretary, R. S. Mackintosh, University Farm, St. Paul, Minn.

Annual meeting Wisconsin State Horticultural Society, Green Bay, November 10-12. Secretary, F. Crane, Madison, Wis.

Annual meeting Maine State Horticultural Society, Portland, November 10-13. Secretary, E. L. White, Bowdoinham, Me.

Annual meeting Indiana Horticultural Society, La Fayette, November 12. Secretary, Monroe McCown, La Fayette, Ind.

Annual meeting Peninsula Horticultural Society, Dover, November 16-18. Secretary, Wesley Webb, Dover, Del.

Annual meeting Iowa State Horticultural Society, Des Moines, November 16-20. Secretary, R. S. Herrick, State House, Des Moines, Iowa.

Sixth Midwest Horticultural Exposition, Des Moines, Iowa, November 16-20. Secretary, R. S. Herrick, State House, Des Moines, Iowa.

Annual meeting Michigan State Horticultural Society, Grand Rapids, November 30 to December 3. Secretary, H. D. Hootman, Department of Horticulture, East Lansing, Mich.

Annual meeting American Pomological Society, Grand Rapids, Mich., November 30 to December 3. Secretary, H. C. Miles, Milford, Conn.

Annual meeting Kentucky State Horticultural Society, December 2-3, (place to be announced later). Secretary, Ben E. Miles, Henderson, Ky.

Annual meeting Virginia State Horticultural Society, Charlottesville, December 7-9. Secretary, W. S. Campbell, Winchester, Va.

Annual meeting New Jersey State Horticultural Society, Atlantic City, December 8-10. Secretary, H. H. Albertson, Burlington, N. J.

Annual meeting Kansas State Horticultural Society, Topeka, December 8-10. Secretary, James N. Farley, Hutchinson, Kansas.

Annual meeting Illinois State Horticultural Society, Urbana, December 15-17. Secretary, H. W. Day, Centralia, Illinois.

Winter meeting Massachusetts Fruit Growers' Association, Worcester, January 4-5. Secretary, W. R. Cole, Amherst, Mass.

Annual meeting Ohio State Horticultural Society, Columbus, January 4-6. Secretary, F. H. Beach, Department of Horticulture, Columbus, O.

Annual meeting Nebraska State Horticultural Society, Lincoln, January 4-7. Secretary, E. H. Hoppert, Lincoln, Nebr.

Annual meeting South Dakota State Horticultural Society, Aberdeen, January 11-13 (date subject to change). Secretary, N. E. Hansen, College of Agriculture, Brookings, S. D.

Annual meeting New York State Horticultural Society, Rochester, January 12-14. Secretary, Roy P. McPherson, LeRoy, N. Y.

Annual meeting Rhode Island Fruit Growers' Association, Providence, January 14. Secretary, Richard M. Bowen, Apponaug, R. I.

Annual meeting Tennessee State Horticultural Society, Nashville, January 18-19. Secretary, J. L. Baskin, Knoxville, Tenn.

Annual meeting Pennsylvania State Horticultural Society, Harrisburg, January 19-20. Secretary, R. E. Atkinson, Wrightson, Pa.

To Dedicate New Horticultural Building at Purdue

A MILESTONE in the development of Indiana horticulture will be reached on November 10, at which time the new horticultural building of Purdue University at La Fayette will be dedicated. Prof. Laurenz Greene and other members of the Department of Horticulture have been working for years for this building, and their efforts have finally been crowned with success.

The dedication program will include addresses by C. G. Woodbury, formerly

head of the Department of Horticulture at Purdue, Prof. J. C. Blair of the University of Illinois, Governor Jackson of Indiana, and others.

The various horticultural organizations of Indiana will hold their annual conventions on November 12, in connection with the dedication exercises. Dr. U. P. Hedrick of the New York Agricultural Experiment Station, will be one of the leading speakers at the convention of the Indiana Horticultural Society. F. C. Gaylord, marketing specialist of Purdue, will speak on the marketing of Indiana peaches, which subject he has thoroughly investigated the past season.

In connection with the meetings, an Indiana Horticultural Products Exposition is to be held on November 11

and 12. All of the horticultural products grown in Indiana will be featured in this exposition.

Midwest Horticultural Exposition at Des Moines

THE SIXTH Mid-West Horticultural Exposition will be held at the Coliseum, Des Moines, Iowa, November 16-20, under the auspices of the Iowa State Horticultural Society co-operating with its affiliated societies and the Des Moines Chamber of Commerce.

The exposition will consist of a gigantic display of horticultural products. Practically all of the middle western states have co-operated in past

years, and the indications are that they will do so again this year. All horticulturists and beekeepers are cordially invited to enter exhibits of their products grown in 1926. Numerous classes of exhibits have been provided for, and liberal prizes will be offered. A catalog containing the premium list can be obtained from Secretary R. S. Herrick, State House, Des Moines, Ia.

The various horticultural societies and organizations of Iowa will hold their annual conventions in connection with the exposition. Each of them has provided for an excellent program.

Save your copies of the **AMERICAN FRUIT GROWER MAGAZINE** for future reference.



Progress and Approval

For Dodge Brothers, Inc. 1926 already stands out on the calendar as a year of unprecedented progress and success.

From January to date sales have exceeded any previous year's total by a margin at once impressive and significant.

New engineering records have been established by a succession of major improvements extending back to the first of the year.

Never has Dodge Brothers Motor Car ranked so high in public favor. Never before has it so richly deserved the world's good will.

Sedan \$895—Special Sedan \$945
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DODGE BROTHERS, INC. DETROIT
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You'll get full value in any Kelly tire

IF you want the very best, there is the regular Kelly-Springfield line of cords and balloon cords, tough, long wearing, generously sized and made of the finest quality of rubber and cord fabric that can be bought.

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You can't go wrong on either a Kelly or a Buckeye. Each represents the utmost in value at its price and each will give you long, carefree mileage. The next time you need tires, it will pay you to see the nearest Kelly-Springfield dealer.

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KELLY SPRINGFIELD PNEUMATIC TIRES

Position of Moon Is No Indicator of Weather

IT IS no sign of rain when the horns of a new moon are turned downward, says the Weather Bureau of the United States Department of Agriculture.

The position of the lunar crescent depends upon the angle that the moon's path makes with the horizon of the earth. On the same day, the position of the crescent is the same in all places having the same latitude. If this weather sign were trustworthy, the same kind of weather would prevail on any given date throughout a belt of latitude extending entirely around the earth. It is inconceivable that such uniformity of weather should exist. In the temperate zones, where the weather travels from west to east, the greatest contrasts of wet and dry conditions are likely to be found along parallels of latitude rather than parallels of longitude.

Near the equator the young moon never makes an angle of more than 30 degrees with the horizon, and it is usually in an even more nearly horizontal position. In other words, the moon would be always a dry one in tropical regions, according to the weather sign. Tropical regions are notorious as regions of heavy rainfall. In the arctic and antarctic regions,

the moon always makes an angle of less than 25 degrees to the vertical. Therefore, the moon in those regions, according to the weather sign, would always be a wet one. However, the polar regions receive such a small precipitation that they rank as arid regions.

A Correction

PROF. C. L. ISBELL of Alabama has called our attention to a discrepancy in the October issue. The picture at the lower right hand corner of page four was credited to J. B. Wright, Cora, Ga. It should have been credited to J. A. Kernodle of Camp Hill, Ala., whose operations are described on the same page in the following words:

"One grower is using successfully a winter cover crop of rye, rape, hairy vetch and crimson clover in a grove that is being pastured. The rye and rape furnish pasturage in the early winter and the clover and vetch provide feed during the early spring. The stock retain little of the fertility, as all the manure will go back to the grove. Such cover crops are turned under early in May."

The strawberry root weevil was found this summer for the first time in a strawberry plantation in Colorado.

The Editor's Mail Box

Pays to Buy From a Reliable Nursery

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I was interested in the letter in the September issue telling about a nursery which sold trees that were supposed not to winter kill. Apparently, this is the same nursery which sold peach trees around here several years ago. Many farmers bought trees in large quantities, and they proved to be nothing but seedlings. We have better trees that we raised from seeds gathered at home. Furthermore, the trees of this nursery do not have peaches when the budded peaches fall, as claimed. In addition, the company never sent men to prune the trees. Of course, the farmers got to keep the third years' crop, but lots of trees did not bear any crop, and they never have amounted to anything. It pays to buy trees only from a reliable nursery.—C. R., Indiana.

ANSWER: I appreciate your kind letter of recent date. Many instances of this kind have occurred and growers should be very careful from whom they buy nursery stock. They should take the precaution to buy only from nurseries which they know to be reliable, or they should satisfy themselves regarding the reliability of any new firm whose agents may visit them.

Federal Farm Loans on Orchard Land

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: Can I borrow money from the Federal Farm Land Bank on my orchard or will they loan me money on the value of the land only? It seems to me that they ought to make some additional allowance for the trees on the land.—W. H. T., Missouri.

ANSWER: The following paragraph, taken from the Rules and Regulations of the Federal Farm Loan Board, will answer your questions, in my opinion:

"On orchards, where the lands have no substantial value except for orchard purposes, no loans shall be made; that where the lands have a basic agricultural value, such value shall be made the basis for the loans; and that orchards shall not be regarded as permanent improvements, but shall be taken into consideration as enhancing the general value of the land and in determining its productive value."

The headquarters of the Federal Land Bank in your section are located at St. Louis, Mo. You can secure further details by addressing your bank.

the season. In 1925 the New Jersey station found over-development of this diameter as early as the hardening of the pit stage.

Splitting occurs most freely on trees which have been girdled or injured in such a manner as to inhibit the downward movement of elaborated food. Under the circumstances, the supply of carbohydrates becomes over-abundant and over-development of the cheek to cheek diameter follows, causing the pits to crack. Apparently the over-supply of carbohydrates stimulates the seed growth early in the season to such an extent that splitting of the stone occurs.

The remedy, according to Prof. Blake, consists in stimulating more vegetative growth so that the trees will use up the supply of elaborated food. Good methods of fertilization, pruning and cultivation should prove a help in this direction. The peach trees should be kept as healthy as possible and especially the trunks and roots. It will probably be difficult or impossible to prevent the splitting of pits on trees which are injured by borers or by winter killing.

Leaf Curl Affects Black Raspberries Also

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I note in the October issue your reply to a party who asked for information about the curling of black raspberry leaves. I note that you state that leaf curl is not known to affect black raspberries. We have had many cases of leaf curl on black raspberries in Michigan, and I could refer you to many parties who would verify the statement. Our inspectors, who have examined plants for some 1500 raspberry growers, have frequently reported leaf curl on black raspberries.—C. A. Bayer, Bureau of Agricultural Industry, Department of Agriculture, Lansing, Mich.

ANSWER: We thank you for the information contained in your letter. The statement made in my reply to F. S. F., Illinois, was made as a result of information obtained from a circular written by a man whom I regard as a good authority. Apparently, he was not fully informed on the subject, or leaf curl was not known to affect black raspberries at the time he wrote his circular.

We are going to publish your letter so that raspberry growers in general may have the benefit of this information.

The October Cover Page

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I think your October cover picture out of harmony with both the objects of the magazine and the season. Why couldn't it have been of the apple—especially in this year of abundance of that crop?—L. B. E., Virginia.

ANSWER: I agree with you that it would have been better if we had used a picture of some American grown fruit on the cover page of the October issue instead of the picture of the banana. Had I known that a picture of the banana was to be used, I should have advised against it. I am referring your letter to our business department, which has charge of the selection of cover page pictures.

Splitting of Pits in Peaches

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I had a large number of peaches with split seeds this year. Is this a variety weakness? If not, what causes it, and how can the splitting be prevented, if at all?—W. E. F., Ohio.

ANSWER: In all probability some varieties of peaches are more subject to splitting of the pits than others, but all varieties seem to show this trouble at times.

An explanation of this matter was made by Prof. M. A. Blake in the October number of *New Jersey Agriculture*, which seems to answer your question very well. Prof. Blake states that splitting does not occur at ripening time, as many people suppose, but that it is due to over-development of the cheek to cheek diameter early in

Rotted Wood Makes Good Mulch

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: I noticed the article by Carroll D. Bush in the August issue of the *AMERICAN FRUIT GROWER MAGAZINE* in regard to sawdust as a mulch. I have used sawdust also, but I consider rotted material from trees or logs far better as a mulch. Material from deciduous timber is best, but any kind will do. I find such material not only good for mulching but also well adapted for improving clay spots, when mixed with the soil or placed in trenches about 10 inches deep. If the trench system is used, the material should be placed in the trenches in September and the trenches should be left open all winter and filled with soil in the early spring.—J. M. S., Washington.

Home-Made Grape Juice

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: Will you please tell me how ripe grapes should be for making grape juice. How can I prevent the juice from working in quart jars, and what method shall I use to make it keep best? Your advice will be much appreciated.—P. M., Iowa.

ANSWER: For grape juice, grapes should be fully ripe but clean and sound. Wash the grapes after picking, then pick them from the stems and crush them as soon as possible. The best quality is produced without much pressing, but in order to make the fullest use of the juice,

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many people press the pulp thorough-ly after crushing. The pressing should be done immediately after crushing. In making grape juice on a small scale, the grapes can be placed in a bag of strong, clean muslin and the pressing can be done by hand. A commercial crusher and press should be used for large scale operations.

If any blending of varieties is to be done, or if sugar, citric acid or tartaric acid is to be added to improve the flavor, this should be done after the pressing is completed.

After the juice is pressed out, it should be placed in deep vessels which have been sterilized. It should be allowed to stand in these undisturbed until settling has taken place. Keep the juice at as low a temperature as possible to prevent fermentation.

When the juice has settled, siphon, dip, or pour off carefully the clear juice and do not agitate the sediment.

It is not necessary to boil the juice to destroy the yeasts and other organisms. Boiling would injure the flavor. You can destroy the organisms effectively by heating the juice to 165 degrees Fahrenheit and keeping it there uniformly for an hour. In the home this heating can be done in a wash boiler fitted with a false wire bottom. The juice can be placed over the false bottom in jars, bottles or another large vessel. One of the most convenient methods for home use is to pour the juice into half gallon, self-sealer jars. These should be placed in the water to within about two inches of the tops. The water should then be heated, as above described. The temperature of the juice should be taken occasionally, stirring the same thoroughly before each reading. As soon as the heating is completed, sterilized tops should be placed on the jars. The juice should be allowed to cool slowly, and it should then be stored in a cool, dry, dark place. It is not necessary to use artificial preservatives, as juice handled by the above method will keep very nicely.

Control of Strawberry Leaf Roller

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: Kindly tell me how to control the strawberry leaf roller. We set out a new patch of berries this spring and they grew nicely, but about half the leaves are closed up as a result of this insect.—G. S., Michigan.

ANSWER: The moths of the strawberry leaf roller appear in May or June in your state and immediately begin to lay eggs on the strawberry leaves. The eggs hatch in about a week, and the young caterpillars begin to feed immediately. Within a few days they begin to draw the two halves of the leaf together.

The leaf roller can be controlled by applying arsenate of lead, five pounds in 100 gallons of water. Application should be made within a week after the first appearance of the moths and before the young caterpillars begin to fold the leaves. Applications made after this time will do little or no good.

It is a good thing also to burn over the strawberry patch as soon as the crop is harvested. By this means, practically all of the larvae and pupae on the old plants will be destroyed. Strawberry patches that are to be abandoned should be plowed up immediately after the last picking of the crop.

Control Brown Rot by Destroying the Mummies

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: The weather has been very wet, and many of my peaches rotted on the trees. No doubt this was caused by failure on my part to cover the fruit thoroughly with spray material. I am now gathering the decayed fruit from the ground, but some of it is certain to escape me, and I am afraid such fruits will reinfest the orchard next year. Please give me your advice as to how the situation can best be handled.—J. N. H., Ohio.

ANSWER: I would suggest that you gather and destroy all of the mummied fruit on the trees and all

of the cull fruit on the ground that you possibly can. If there are weeds and grass in the orchard, it will probably be a good thing for you to remove the growth from near the trunks of the trees and burn over the orchard some time this fall when the grass is dry. This will kill much of the disease and it will also expose the remainder to the action of the weather.

This winter when you spray for scale and peach leaf curl, it would be a good thing, in my opinion, for you to spray the ground also. This will no doubt kill the brown-rot spores on a great many of the fruits which are not gathered. As a rule, a large proportion of the spores attached to

fruit on the ground die during the winter, but in all probability some of them live over.

More About Tent Caterpillars

EDITOR, AMERICAN FRUIT GROWER MAGAZINE: In regard to the inquiry of H. W. B. concerning the control of tent caterpillars, my suggestion is that he take a common machine oil can, fill it with kerosene and saturate the tents during the hot part of the day when the caterpillars seek the shelter of the tents. The kerosene will kill all caterpillars with which it comes in contact. Be sure to apply

this treatment when the caterpillars are in the tents, as they are outside feeding during the cool part of the day.—A Nebraska Reader.

Motorists, riding near a farm orchard, stopped the car, got out, climbed the fence, and gathered a bag of apples.

To complete the "joke" they slowed down as they went by the farmhouse and called out to the owner: "We helped ourselves to your apples. Thought we'd tell you."

"Oh, that's all right," the farmer called back. "I helped myself to your tools while you were in the orchard." —Delaware Monthly.



*We think of Thanksgiving
in harvest time,
In the yielding, gathering,
golden time.
When the sky is fringed
with a hazy mist,
And the blushing maples—
by frost lips kissed,
When the barns are full
with the harvest cheer
And the crowing thankful
day draws near.*

The new Automatic Delco-Light is priced at only \$275 f. o. b. Dayton. It may be purchased on the convenient terms of the General Motors deferred payment plan.

THANKSGIVING 1926

WHEN the sun goes down on Thanksgiving Day, the windows of more than a quarter-million farm homes will flash a cheerful message of happiness, contentment and thankfulness.

In these homes, Thanksgiving will not end with darkness. They will have light—clean, safe, dependable electric light—light that drives out the shadows and removes forever the bother and danger of coal-oil lamps.

Where there is Delco-Light, there are long, leisurely, pleasant evenings—evenings spent happily in study and in play. The Delco-Light plant that furnishes light also does the chores—generates ample power for pumping, grinding, turning the separator, running the washing machine and operating other small power machinery.

If you are not yet familiar with all that Delco-Light will do for your home, write today for complete information. Learn how easily and inexpensively Delco-Light can be installed—now.

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However storms may interfere with travel, telephone operators are at their posts

An Unfailing Service

AMERICANS rely upon quick communication and prove it by using the telephone seventy million times every twenty-four hours. In each case some one person of a hundred million has been called for by some other person and connected with him by means of telephone wires.

So commonly used is the telephone that it has come to be taken for granted. Like the air they breathe, people do not think of it except when in rare instances they feel the lack of it.

Imagine the seventeen million American telephones dumb, and the wires dead. Many of the every-day activities would be paralyzed.

Mails, telegraphs and every means of communication and transportation would be overburdened. The streets and elevators would be crowded with messengers. Newspaper men, doctors, policemen, firemen and business men would find themselves facing conditions more difficult than those of fifty years ago, before the telephone had been invented.

To prevent such a catastrophe is the daily work of three hundred thousand telephone men and women. To maintain an uninterrupted and dependable telephone service is the purpose of the Bell System, and to that purpose all its energy and resources are devoted.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES



IN ITS SEMI-CENTENNIAL YEAR THE BELL SYSTEM LOOKS FORWARD TO CONTINUED PROGRESS IN TELEPHONE COMMUNICATION

Study Grimes Apples During Harvesting and Storage

THE IOWA Experiment Station, in co-operation with the United States Department of Agriculture and other state experiment stations, has made some interesting studies on changes in Grimes apples during harvesting and storage. The studies were made by H. H. Plagge, T. J. Maney and Fisk Cehrhadt. The most important conclusions were as follows:

Several objections were found to the use of the pressure test as an indicator of the time of picking.

Grimes soften rapidly at ordinary temperatures after picking. The rate of softening can be measured by the pressure test at weekly intervals.

Apples showing different degrees of hardness when placed in storage at 32 degrees Fahrenheit showed practically the same relative degrees of hardness at the end of the storage test.

An apple continues to increase in size as long as it is attached to the tree, and it may be stimulated in growth late in the season by excessive moisture. Measurements which show increase in size cannot be used for determining the proper time of picking.

Changes in color considered in connection with easy separation of fruit from the tree and ripening of the

fruit detached from the tree were found important factors in determining the degree of ripeness of Grimes.

Change in seed color alone was not a reliable index of the time of picking. In 1923, for instance, seeds reached full color before the fruit was ready for commercial picking.

During the ripening process of apples on the tree and in storage, there was a loss of moisture, acidity, dextrins and starch. There was an increase in specific gravity, sugars and soluble pectin.

The time of picking or condition of maturity at the time of storage within certain limits apparently had little effect on the ultimate chemical composition of the fruit in storage.

Chemical differences were found to exist between apples with normal tissues and those showing internal breakdown. These differences were relatively small and suggest that physical or other chemical changes not considered are involved in the formation of diseased tissue during storage.

Dubious

Salesman—Yes, sir, in this car you will feel as comfortable as if you were at home.

Mr. Henry Peck (promptly)—Er—have you no other kind?—Answers, London.



With the Co-Ops.

MANAGERS of fruit and vegetable co-operatives state that insufficient business is their greatest handicap, according to the Department of Agriculture. Other serious difficulties are too many varieties, a lack of grade standards, and the effect of retailing methods and margins on consumption.

The value of perishables marketed co-operatively increased about 170 per cent between 1915 and 1924, or from \$110,000,000 to \$300,000,000, says the department. During the 10-year period it has become increasingly difficult to market perishables at prices satisfactory to growers. Prices of other commodities have increased more rapidly than those of perishables, with the result that the position of growers is relatively less favorable than it was during the pre-war years.

Two fundamental factors operate to keep the prices of perishables at relatively low levels. In the first place, production is in excess of what the markets will absorb at profitable prices.

The purchase of greater quantities of more staple foods is taking place at the expense of fruits and vegetables.

The department states that the large, well established co-operatives are for the most part rendering excellent service but that many of the smaller associations apparently do not appreciate their opportunities to improve marketing conditions.

The department believes, as a result of its study of the reports received, that too many members judge their associations altogether by the price they receive for the current crop. The existence of co-operatives will be precarious and the services they render will be limited as long as growers take this viewpoint, in the opinion of the department.

In many cases the directors of co-operatives, anxious to give growers a higher price than that received by independent growers, fail to build up a proper financial reserve. Members should be educated, in the opinion of department experts, to view the co-operative operations from a long-time standpoint. Members should be willing to invest a part of their returns in the association during the early years of the organization. The value of co-operation cannot be measured directly in dollars and cents.

The seven factors most frequently reported as serious in the operation of co-operative associations are as follows:

1. Volume of business insufficient.
2. Too many varieties produced.
3. Inefficient grading and packing.
4. Inability to control the time and place of delivery of the product.
5. Inefficient sales service.
6. Excessive retail margins.
7. Transportation problems.

The results of this study are reported in Department Bulletin 1414-D, copies of which may be obtained from the Department of Agriculture, Washington, D. C.

IN THE early days of co-operation, only a few associations used contracts. Now 16 per cent of all associations reporting to the Department of Agriculture use contracts. About one-third of the total membership of co-operatives uses contracts.

The percentages of associations using contracts for leading co-operative states are: California, 74 per cent; New York, 55 per cent; Washington, 53 per cent; Oregon, 37 per

cent; Michigan, 21 per cent; Minnesota, five per cent; and Wisconsin, four per cent. The percentage of different commodity organizations which use contracts are as follows: poultry and eggs, 76 per cent; fruits and vegetables, 67 per cent; and wool, 54 per cent. Less than nine per cent of the livestock associations, less than eight per cent of the dairy organizations, and less than four per cent of the grain organizations, use contracts.

THE WASHINGTON Growers' Packing Corporation, whose headquarters are located at Vancouver, Wash., is an important factor in the fruit industry of southwestern Washington. It has about 700 members and conducts business to the amount of about \$600,000 annually. The principal crop handled is prunes, although small fruits of many kinds are handled. The association controls about 75 per cent of the prune crop of Clarke county, Washington, which grows practically all the dried prunes produced in Washington. Earlier in the season the association expected to handle 9,000,000 to 10,000,000 pounds of dried prunes this year, but this tonnage has no doubt been decreased as a result of the unfavorable weather conditions in August. The berries handled by the association are preserved mostly in barrels, being stored in Portland cold storage plants.

The association incorporated originally for \$40,000, but during the present season it reorganized under the new co-operative law on a \$60,000 basis. Each grower member is required to buy one \$10 share for each acre of fruit he grows. No dividends are paid on the capital stock. One per cent of the net returns is placed in a reserve fund. A profit is made on the supplies handled.

The association owns a processing plant worth about \$42,000. An addition costing \$20,000 was made to this plant early in the season. The association uses a five-year non-cancelable contract. The one-man, one-vote, principle is followed. Retired members cannot vote.

THE CALIFORNIA Prune and Apricot Growers' Association announced opening prices on August 16. Prices on the different sizes were quoted on a bulk basis and in 25-pound packages.

This year special emphasis will be placed on the sales promotion program; just enough advertising will accompany it to stimulate the sales work. Sales promotion work will be conducted in 450 cities this fall. About 200 salesmen will be employed for an average of about eight weeks.

Billboard advertising has proved successful in the past and will be the main form of advertising used this year. An attractive poster will be displayed in about 256 cities. In sections where the winters are severe, local newspaper advertising will be conducted. Small, snappy copy with considerable black background will be used. Comparatively small advertisements will be carried, and these will be run for a longer period than would be financially possible if larger space were used.

Display advertising will also be used in store windows, and counter displays featuring the new 11-ounce can of prunes will be distributed.

In New York and Boston, where poster space is difficult to secure, the advertising will be confined to sub-

way and surface cars. In addition to the new 11-ounce can of Sunsweet prunes, ready to serve, the association is also introducing this year a two-pound carton, hermetically sealed, lined with parchment paper and wrapped in a cellophane wrapper.

THE ASHLAND Fruit and Produce Association, Ashland, Ore., handled products to the value of \$149,505 during 1925 as compared with \$116,162 during 1924. The association handles peaches, cherries, pears, apples, berries, grapes and a few other products. It also buys supplies. The sales are made mostly in Oregon and California, largely by mail and telephone orders. The association was organized in 1902 and is a stock company with about 300 stockholders. The amount of the sales have ranged from \$14,760 in 1915 to \$162,353 in 1920.

THE CALIFORNIA Almond Growers' Exchange, San Francisco, had 3536 members on August 1, 1926. Since December 1, 1925, 160 new members have joined the organization. The acreage of bearing almond trees in California is about nine per cent greater than in 1925. This year's crop promises to be better than the average.

Recently a director's committee thoroughly investigated the matter of branding or trade-marking the individual almonds. The committee reported that it did not think the branding of individual nuts advisable. They reported that in their opinion the use of a trade-marked package would be more practicable.

THE TEXAS Citrus Fruit Growers' Exchange, Mission, Texas, planned some time ago to conduct an advertising campaign in connection with the marketing of the 1925-26 crop. Owing to the almost total failure of the crop, the campaign was not carried out as planned.

It is now proposed to conduct advertising in connection with the marketing of the 1926-27 crop. The advertising is to bear largely on the grapefruit and is to be built around the slogan, "Delicious without sugar." The brand name of the exchange is to be, "Texas Sweet Citrus Fruits." The sum of 10 cents per packed box is to be set aside for advertising.

The exchange is doing educational work among its members in behalf of the production of quality fruit. Efforts are also being made to increase the membership.

THE NORTH Pacific Co-operative Prune Exchange, Portland, Ore., received 2,839,863 pounds of Italian prunes from its members during the 1925-26 season. Practically the entire quantity was handled in the regular pool, only 239,130 pounds being handled in the consignment pool. The receipts after deducting the cost of packing amounted to \$233,657. The total deductions amounted to \$27,200. An adjustment of \$1309 was made from the consignment pool. The net balance credited to growers was \$208,266. The prices for the various sizes of prunes ranged from four cents to 14.7 cents a pound.

THE INCOME from \$128,800 is being used to promote the development of co-operative marketing in Manitoba, Canada. A specially created body called the Manitoba Co-operative Marketing Board has been organized to supervise the matter.

The money was received from the surplus resulting from the operations of the Canadian Wheat Board in 1919. It has been invested in bonds guaranteed by the Canadian government. The income amounts to about \$6000 a year and will be used for educational purposes in connection with co-operative work.

THE FLORIDA Citrus Exchange decided over a year ago to stamp its individual fruits with the trade name Seal-Sweet. Contracts for more than 200 machines were placed last season. More than 100 of these have been in-

stalled, and additional machines are now being rapidly made ready for operation.

The exchange is emphasizing its branding methods in the publicity which it is spreading among the trade, and it is hoping that a substantial increase in price and demand for Seal-Sweet fruits will result. The exchange officials believe that the new branding methods will help to create a preference for exchange fruit among consumers that will result in increased returns for its members.

A 40-PAGE booklet contains the proceedings of the First Co-operative Institute held by the Department of Farm Economics of the South Dakota State College at Brookings, South Dakota, last winter. The booklet includes extracts from the addresses and discussions of the institute. Some of the more important subjects are discussed at length. Some of the best informed authorities on co-operative marketing in the country took part in this institute. Copies of the booklet may be obtained from the Department

of Farm Economics, South Dakota State College, Brookings, South Dakota.

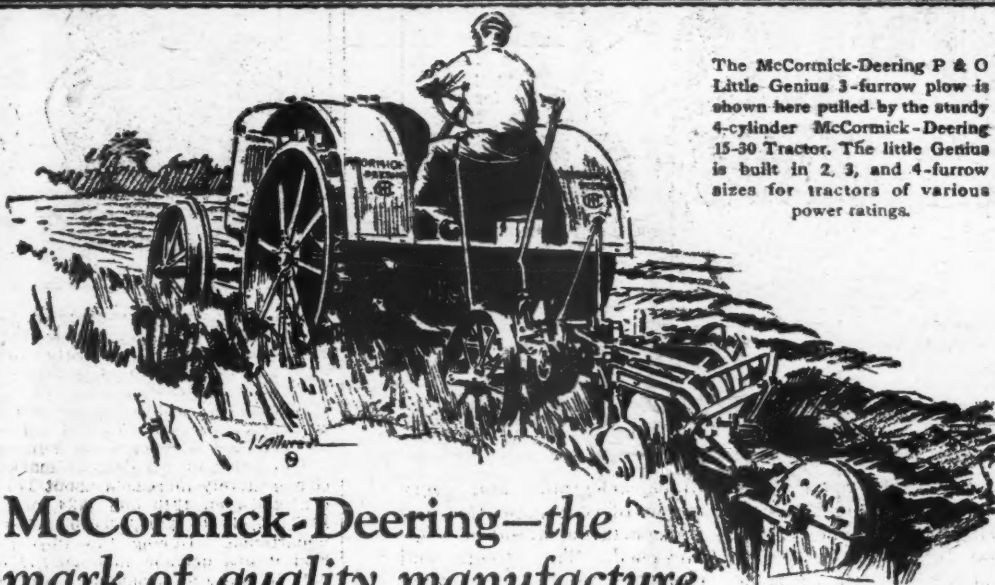
AN OFFICIAL of the United States government, who has just returned from two years of residence in Denmark, asserts that co-operation has liberated the women of that progressive commonwealth from the drudgery that has enslaved them for untold centuries.

Forty years ago farm women in Denmark did men's work in the field. It was not uncommon to see the peasant women laboring in the fields often with their babies strapped upon their backs doing work about the farm. Today it is very unusual for a Danish woman to do any man's work.

In the countries adopting co-operation, the peoples' prosperity and standards of living have been raised.

Teacher (to seven-year-old)—So you have broken off a tooth, have you? How did you do it?

Seven-year-old—Oh, shifting gears on a lollipop.



McCormick-Deering—the mark of quality manufacture

THE McCormick-Deering dealer in your community offers you tractors and tractor plows developed by one builder for your satisfaction. The dealer, who is expert in gauging the machine needs of his community, has chosen his stocks from the McCormick-Deering line with your soil, crop, and climatic conditions closely in mind. If you are interested in turning your soil in the shortest possible time and with the smallest expenditure of man labor, we urge you to study the McCormick-Deering combination of power and plows.

McCormick-Deering Tractors are sturdy, modern, 4-cylinder units, built in three types,—10-20 h. p. and 15-30 h. p. regular tractors, and the two-plow Farmall designed for planting and cultivating row crops in addition to doing all regular tractor work. All three embody the same basic 4-cylinder engine design and are built according to Harvester quality standards for long years of economical, labor-saving operation.

McCormick-Deering P & O Tractor Plows—moldboard and disk types—are up-to-the-minute in every detail. Designed to plow with minimum power and to operate with minimum human effort. Power lifts, accessible levers, quick adjustments, easily removable shares, etc., are features.

Ask the local dealer for specific information on tractors and plows for your requirements.

INTERNATIONAL HARVESTER COMPANY

605 So. Michigan Ave. of America Chicago, Ill.
(Incorporated)

McCORMICK-DEERING TRACTORS and P&O PLOWS

The McCormick-Deering P & O Little Genius 3-furrow plow is shown here pulled by the sturdy 4-cylinder McCormick-Deering 15-30 Tractor. The Little Genius is built in 2, 3, and 4-furrow sizes for tractors of various power ratings.

P & O

For more years than most of us can remember, the name P & O has meant absolute plowing satisfaction. Today, the McCormick-Deering line of tractor plows bearing this name upholds the P & O tradition with incomparable tractor moldboard and disk plows for open field, orchard and vineyard use. Built by the makers of the famous 4-cylinder McCormick-Deering Tractors for every kind of soil and power. Also, a complete line of horse-drawn gangs, sulkies, and walking plows.



McCormick-Deering 4-cylinder FARMALL

The new all-purpose tractor for planting and cultivating corn, cotton, and other row crops. Leads the way to real horseless farming.

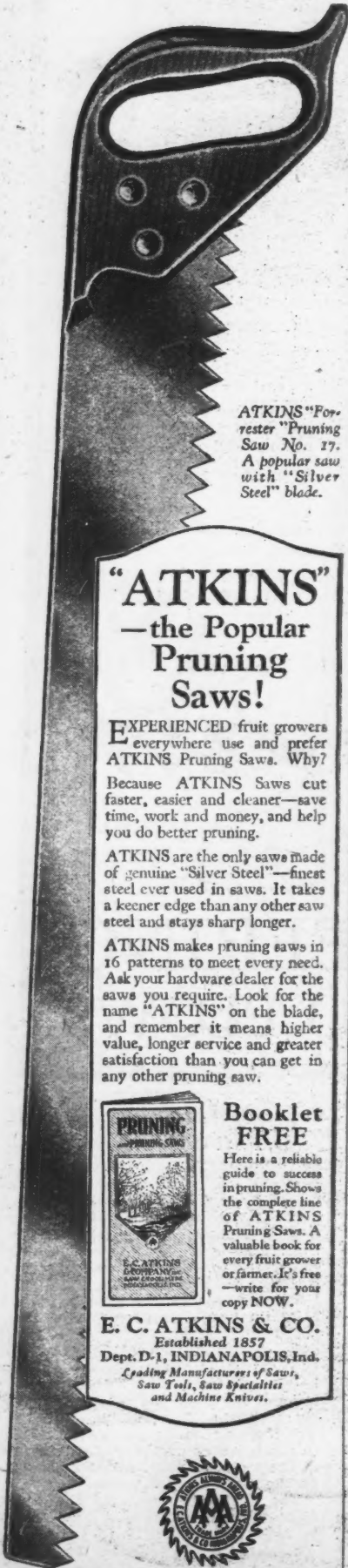
P. D. B. Effective Against Oriental Peach Moth

PARADICHLOROBENZENE has proved effective in checking to some extent the oriental peach moth, according to authorities of the New Jersey Agricultural Experiment Station, who have been searching diligently for practical methods of controlling this serious pest.

The material can be used in practically the same way for the oriental peach moth as for peach borers. The only change necessary is to mound the earth over the material to a height of eight to 12 inches for the oriental moth instead of only four to six inches as for the peach borer. The higher mounds permit the fumes to reach larger numbers of the larvae of the moth, many of which hibernate on the trunk near the base.

The best time to apply the paradichlorobenzene in the average season is from September 15 to October 1 for northern New Jersey and from October 1 to 15 for the southern part of the state.

ATKINS SILVER STEEL SAWS



ATKINS "For-
rester" Pruning
Saw No. 17.
A popular saw
with "Silver
Steel" blade.

"ATKINS" —the Popular Pruning Saws!

EXPERIENCED fruit growers
everywhere use and prefer
ATKINS Pruning Saws. Why?

Because ATKINS Saws cut
faster, easier and cleaner—save
time, work and money, and help
you do better pruning.

ATKINS are the only saws made
of genuine "Silver Steel"—finest
steel ever used in saws. It takes
a keener edge than any other saw
steel and stays sharp longer.

ATKINS makes pruning saws in
16 patterns to meet every need.
Ask your hardware dealer for the
saws you require. Look for the
name "ATKINS" on the blade,
and remember it means higher
value, longer service and greater
satisfaction than you can get in
any other pruning saw.



Booklet FREE

Here is a reliable
guide to success
in pruning. Shows
the complete line
of ATKINS
Pruning Saws. A
valuable book for
every fruit grower
or farmer. It's free
—write for your
copy NOW.

E. C. ATKINS & CO.
Established 1857
Dept. D-1, INDIANAPOLIS, Ind.
Leading Manufacturers of Saws,
Saw Tools, Saw Specialties
and Machine Knives.



An "Apple Source" That Makes a Hit

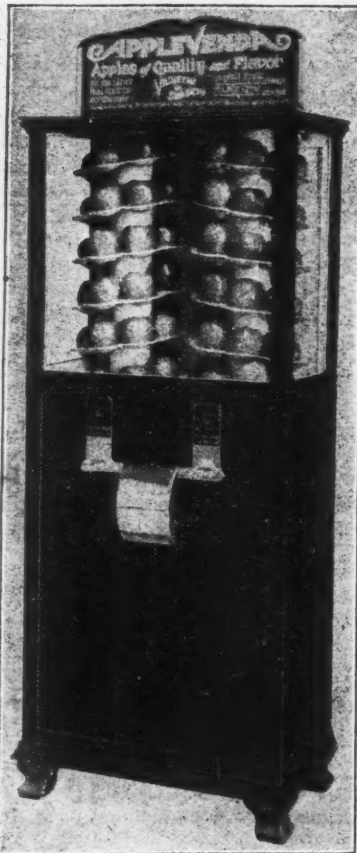
By E. L. Reid

A NEW device for marketing apples
as gum and candy are sold, is
now in use in Portland, Ore. In
March a dozen or more of these ma-
chines were put in operation in hotels
and office buildings.

The Applevenda holds 86 apples,
red and yellow ones being featured on
each side respectively. High grade
apples only are used, as they sell for
five cents each. Apples used thus far
have been from the Hood River Valley
and mid-Columbia River districts in
Oregon and Washington.

Already it is a common sight to
see folks going along the street eat-
ing an apple as they might a cho-
colate bar or mints. Hungry office girls
buy this delicious fruit instead of
sweets, and the apple seems to be
coming into a well-deserved place in
"office hours" confections.

A nickel is dropped into whichever
slot is chosen to release the appealing
yellow or red type of apple. The apple
falls into a metal cup which opens
and reveals the fruit. The apples are



The Applevenda, a machine that promises
to help increase the consumption of
apples

in a dust-tight receptacle and make
an appetizing display that is creating
many customers. One hotel sold three
or four boxes a day at first. The ma-
chine can be used for oranges when
the apple season is dull.

A special feature of marketing
apples in this way is that only good
eating apples in season will be sold.
There will be no hard Newtowns in
November, nor will Jonathans be ex-
hibited in the Applevenda after they
are tasteless. Thus a real education
in apple flavors will be developed, re-
sulting, it is hoped, in a genuine
popularity of the apple as a confec-
tion.

Both Safe

The lady was very condescending.
"My husband is very jealous," she re-
marked to her partner on the floor,
"so I dance with exceedingly plain
people."

"It's a good system," said he, "I fol-
low it myself."—Life.

Markets and Marketing



THE DEPARTMENT of Agriculture
has been sending out blank con-
tract forms to be filled by shippers
and handlers of fruits and vegetables
who desire to operate in accordance
with the recommended United States
standard grading rules, which are set
forth in the contract. A symbol and
registration number are being fur-
nished to each person or firm who
signs the contract, and the same may
be used on business stationery.

The department is planning to pub-
lish a list of those who agree to co-
operate in the promotion of the ap-
proved standard practices as soon as
sufficient time has elapsed to give
each person and firm a fair opportu-
nity to sign a contract. No fees or
charges are attached to the signing
of the contract, which must be exe-
cuted in duplicate. Blank forms may
be obtained from the Bureau of Agri-
cultural Economics, Washington, D. C.

THE FOLLOWING table shows the
steady growth which the fruit in-
dustry has been making in the Wenat-
chee district of Washington during
the last twenty-three years:

Growth of Fruit Industry, Wenatchee District			
Season	Carlot Ship-ments	Season	Carlot Ship-ments
1902.....	2	1914.....	6,848
1903.....	116	1915.....	5,739
1904.....	587	1916.....	7,883
1905.....	632	1917.....	8,616
1906.....	603	1918.....	9,606
1907.....	807	1919.....	13,303
1908.....	1,540	1920.....	10,542
1909.....	1,804	1921.....	14,845
1910.....	2,791	1922.....	14,901
1911.....	2,286	1923.....	19,571
1912.....	4,273	1924.....	13,510
1913.....	4,461	1925.....	16,983

*January freeze. †May freeze.

Most of these figures are the result
of data collected by the Great North-
ern Railway.

THE LARGE peach crop of about
3000 cars produced in southern Illi-
nois this year fared about as well on
the markets as could be expected.
Much of the fruit was sold at ship-
ping points, opening at around \$1.75
per bushel in the extreme southern
counties and declining to \$1.25 to
\$1.50 toward the close of the season
in the northern parts of the peach dis-
trict. Much small stock and culls
were sold to truck buyers at from 25
to 35 cents a bushel. The crop was
double that of any previous year, due
to the large increase in acreage of
peaches in recent years.

The peach sections of southern Illi-
nois comprise two large and distinct
districts. In the extreme southern
district are included Union, Jackson,
Johnson, Williamson and Pulaski
counties. The crop in this district
ripens about a week earlier than in
the more northern district. The other
district centers around Centralia and
Newton, which are 75 to 100 miles
north of the southern section.

Sales this season, as usual, were
made chiefly in midwest markets.
Eastern peaches did not offer serious
competition in these markets. Chicago
took 760 cars, or about one-fourth of
all shipments. Detroit was the next
heaviest receiver of Illinois stock, and
St. Louis also used large quantities of
medium-sized stock. Not many of the
peaches went east of Pittsburgh be-
cause of the competition of southern
and eastern peaches. A number of
the larger southern cities, including
New Orleans, Birmingham, Memphis,
Nashville, Houston, Tampa, Miami, At-
lanta and Jacksonville were steady
receivers of Illinois peaches.

Prices in city markets ranged
mostly between \$1.25 and \$2.50. Some
large peaches of the Hale variety sold
at \$2.75 in early September on the
Chicago market. Over-ripe and poor-
ly graded stock was practically the
only kinds which sold for unsatisfac-
tory prices.

THE SECOND largest and in many
respects the most modern fruit
packing and storage plant in the
Northwest was recently built by the
Brown-Neppel Storage Company at
Neppel, Wash., on the C. M. & St. P.
Railway. The new building adjoins
the original plant and is 90 by 200
feet in size, two stories high, of brick
and concrete construction and
equipped with a direct expansion re-
frigeration system which will provide
storage facilities for 240 cars of ap-
ples.

The building is arranged for pre-
cooling all fruit before packing, and
the equipment is so arranged as to
eliminate all trucking. Conveyors
carry the boxes automatically to the
precooling room. From there they
go to the five graders on the second
floor.

After being packed, the apples are
conveyed to automatic lidding presses
and then to the cold storage rooms or
loading platform. The conveyor sys-
tem is so arranged that boxes may be
brought from any part of the plant at
any time.

The new plant is capable of receiv-
ing, precooling and packing 6000 boxes
of apples a day. Wiping machines
are installed in the packing depart-
ment. Every detail has been carefully
considered, and it is believed that this
plant is one of the most complete in
existence.

Plans for the plant were drawn by
L. Solberg and the building was con-
structed by the Burnett-Garke Com-
pany. The cost was about \$160,000.
W. C. Brown is manager and Edwin
J. Brown, former mayor of Seattle, is
associated with him.

FREIGHT CAR loadings have been
very high this season, and the sup-
ply of serviceable cars has practically
been exhausted. E. S. Briggs, secre-
tary of the American Fruit and Vege-
table Shippers' Association, is urging
shippers and dealers everywhere to
unload cars in the shortest time pos-
sible and to order no cars in excess
of immediate requirements. These
precautions, observed by growers and
dealers in general, will help greatly to
prevent a possible car shortage.

THE CALIFORNIA Prune and Apric-
ot Growers' Association reported a
short time ago that it had sold to
packers 34,000,000 pounds of prunes at
full opening prices. It also had sold a
considerable quantity to the trade at
full opening prices. The carton sales
were meeting with a ready response.
The association is not attempting to
meet the low prices of some interests
but is standing firm for the opening
prices, feeling that the reduced north-
western crop, the absence of any
carry-over from last year, and the
moderate crop of this season, will have
a beneficial effect on the market in
due time.

E. W. MITCHELL, president of the
New York State Horticultural So-
ciety, recently sent out a very strong
letter to his members. In view of the
unsatisfactory marketing conditions
for apples, he recommended that

growers reduce production by destroying trees of unprofitable varieties, by thinning the fruit, and by sending low-grade fruit to by-product factories. "Good apples alone will bring more than good and bad together," is one of the many pertinent remarks made by Mr. Mitchell.

He also emphasized the advisability of advertising apples and urged all members to support Apples for Health, Inc., the new organization recently formed under the auspices of the American Pomological Society.

THE PRUNE CROP of the Pacific Northwest was estimated early in the season at from 60,000,000 to 100,000,000 pounds. Rainy weather in late August damaged the crop considerably. As a result the crop is now estimated at from 40,000,000 to 50,000,000 pounds.

Due to the prospective large crop, the demand was rather weak early in the season. Prices for 40-50 prunes packed in 25-pound boxes fell to as low as six and one-fourth to six and one-half cents a pound, it is reported. About 40,000,000 pounds are said to have been sold at fairly low prices.

ABOUT 2500 cars of inspected apples will be shipped from West Virginia this year as compared with 1100 cars shipped last year. The increase is due largely to the larger crop this season and partly to the increasing confidence of growers in the inspection service.

Practically every variety of apple grown in the state will show an increased yield this year as compared with last year. The size and quality are reported to be good.

The state department of agriculture is making arrangements to take care of the inspection requests of growers. Probably more than 100 cars will be inspected this year in the Ohio Valley, in which place there has not heretofore been a demand for inspection service.

GRAPEFRUIT production in Porto Rico will probably reach 650,000 to 750,000 boxes during the present season. A hurricane on July 23 reduced the crop about seven to 12 per cent. The damage to trees was negligible, according to reports. The production during 1925-26 was about 1,000,000 boxes.

ABOUT 200 inspectors are in the employ of the inspection division of the Florida Department of Agriculture this season in the inspection of citrus fruits for maturity until November 26, when the state regulations are lifted. At the beginning of the season a school of inspection was conducted for the education of these inspectors.

Monthly Market Review

THE FOLLOWING monthly review of the fruit marketing situation for the month ending October 9 was furnished by the Bureau of Agricultural Economics of the United States Department of Agriculture:

"This is the time of heaviest supply of fruits and vegetables. Crops are late but generally abundant. The total carlot movement has been greater than last season, especially for the fruits. Home-grown supplies everywhere have lessened the demand for distant products. Markets have been over-loaded, and the general tendency has been toward lower prices as compared with last month or with last season.

"Most leading kinds of fruit in early October were selling below the prices of a year ago. Some of them declined further during the past month, including a drop of 10 to 15 cents per bushel for apples, but pears, grapes, and peaches brought about the same general range of prices as in September.

Apple Prices Generally Low
"Most markets are over-supplied with home-grown fruit. Partly for this reason and partly because of a

A Big Year for DRITOMIC SULPHUR

Reg. U. S. Pat. Off.



And other products branded with "The Shield of Quality"

Lime Sulphur Solution
Oil Emulsion
Arsenate of Lead
Kalinex
Bordeaux Mixture
Arsenite of Zinc
Calcium Arsenate
Dritomic Sulphur
Atomic Sulphur
Sulphur Dusts



THIS has been a BIG CROP year for the ever-increasing number of growers who used "Orchard Brand" DRITOMIC SULPHUR for all fungicide control from the calyx spray until harvest. The peach growers and apple growers join in enthusiastic praise of its success—effective control without injury. They all tell us of their FINE FRUIT.

"This past season I used still more and next year I expect to use it almost entirely except for winter spray. Have had large crops of fine apples last year and again this year."

A. W. Skaymaker (Wyoming, Del.)

"We have used Dritomic now for three years. It has given perfect satisfaction to ourselves and customers. It does the work."

Perrine Bros. (Centralia, Ill.)

"We used Orchard Brand products, namely, Dritomic Sulphur and Arsenate of Lead, this season in spraying our orchard and were highly pleased with the results obtained from same. It is our intention to again use these products the coming season."

Kingston Orchard Co.,
22,000 peach trees
(Kingston, Tenn.)

Dritomic Sulphur used with "Orchard Brand" Arsenate of Lead will bring you a peach or apple harvest of clear fruit of wonderful color—just as if nature gave sunshine and abundant moisture, and no disease infections existed. Use it next year! Literature and prices on request—from your dealer, or

New York
St. Louis

GENERAL CHEMICAL COMPANY

Los Angeles
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ORCHARD BRAND

REG. U. S. PAT. OFF.

SPRAY & DUST MATERIALS

late season, carlot shipments of apples from eastern states have not been so heavy. Western boxed fruit has been marketed actively because of the early season in that region and some demand for export. Recent damage by freezing in the Northwest threatens to reduce the supply of long-keeping boxed fruit. Market production in the western boxed apple region was estimated about one-fifth more than in 1925, and nearly one-fourth more than the average. Other apple regions have one-third more market apples than in 1925 and 50 per cent above the average. Notwithstanding the heavy supply expected, the situation has some possibilities. Fall apples were a large proportion of the total and some of these will go to waste. Supply of long-keeping apples may be quite moderate if freezing damage turns out to be serious. Some late varieties are only a fair crop, and these kinds should sell higher than the others, as for instance the Northern Spy and the Delicious. Export trade promises well, and some authorities believe the demand from Europe will equal that of last year. Last season the apple exports took over one-eighth of our market crop. A plan of co-operative advertising may help the demand in domestic markets. These points lend

some encouragement to growers to take care of the late-keeping fruit. In any event, market conditions this season should not lead to neglect of the trees. Orchard promises as well as any other important line of farming because average production of apples over a long period has not increased as fast as the population.

"Some representative prices at country shipping points toward the middle of October were \$1.15 per box for Extra Fancy Northwestern Jonathans, and \$1.25 for Winesaps. The prevailing rate in producing sections for such standard lines as Michigan Baldwin and Virginia Grimes and Yorks is \$2.75 to \$3 per barrel, and a range of \$2.50 to \$3.50 covered most sales of barreled stock at shipping points, while basket stock sold around 75 cents, compared with \$1. to \$1.50 for similar stock a year ago. The general tendency for apple prices during September and early October was slightly downward.

Fruits in Heavy Supply

"Pears, peaches, and grapes have continued very active market features. Many varieties of pears are selling a little lower than last season, but quotations have held fairly steady since the opening. New York and Michigan Bartletts have been selling at \$2

to \$2.50 a bushel in city markets. Midwestern Kieffers brought \$1.10 to \$1.25, and western Kieffers \$1.75. Eastern Seckles seemed to be a light crop and have been selling nearly twice as high as they did last season.

"Peaches have been selling generally much lower than last season. Quality of the late northern crop was only moderately good. A prevailing range of \$1 to \$1.75 per bushel for Elbertas compares with \$2 to \$3 last year.

"Prices of grapes declined a little further in early October. Some lines were selling \$5 per ton lower than in early September. The general level is much lower than that of last season for most varieties. Shipments of California grapes have been a leading feature but owing to low prices at shipping point the movement from central California producing sections has been lighter than might have been expected from the size of the crop. The total grape movement has been a little less than last season. California grapes have been selling recently at \$35 to \$75 per ton at shipping points. Michigan Concords put up in baskets brought \$40 in producing sections and New York Concords \$55 to \$60. City wholesale markets quote various varieties of eastern grapes at 45 cents to 75 cents per 12-quart basket."



Early CROPS Fancy PRICES

Truck farmers, fruit growers, poultry raisers and live stock producers are prospering in the L. & N.-served South because of the mild climate, the all-year growing season and the constantly increasing demand for their products. Snow and ice are unknown in most sections of the Southland, labor is plentiful and cheap, and living conditions are excellent and moderate in price. For full particulars about the Southland as a place to live and prosper, write to G. A. Park today. General Immigration & Industrial Art, Louisville & Nashville Railroad, Dept. AF-1, Louisville, Ky.

L&N

PROTECT YOUR TREES

with Diamond Mesh Expandable Guards

which have solved the problem of tree protection for every grower who has tried them. The most perfect protection against rabbits, mice, woodchucks, rats, moles, etc., easiest applied; Perfect Fastener, can't come loose. Rugged, durable guard of finest quality, heavy galvanized steel, yet cheapest guard in the market. Write today for our important free handbook of helpful information, listing everything for the Orchard and Garden if you not already have one.

THE ORCHARD AND GARDEN SUPPLY CO., Northampton, Mass.

THIS AIR RIFLE FREE

Great sleepers! Free for selling only 25 worth of Chewing Gum at 5¢ a piece. No Extra Money. Write: Wm. C. Co., 263 4th St., Concord, Mass.

**More \$\$ for
Fruit Growers
and Your Lime
FREE**

That sounds good and it is as good as it sounds. Apply nitrogen and lime at one time, at the cost of nitrogen alone. Trees and plants greatly need lime. In this way it is obtained FREE. Nitrogen and lime cause vigorous growth and produce fruit of greater size, finer quality, of high color, that brings top prices, with bumper yields that give the grower greatest profits.

CALCIUM NITRATE

15.5% Nitrogen = 18.8% Ammonia
Containing also 28% available, water soluble lime. It will pay to learn about this valuable new fertilizer and now is the time to inform yourself. Send for booklet. Sold by dealers. If your dealer cannot supply, send his address to us.

KUTTROFF, PICKHARDT & Co., Inc.
Agricultural Department
1150 Broadway New York
627 Grant Bldg., Atlanta, Ga.



Birthplaces of Famous Apples

(Continued from page 8)

that the original tree was growing there in the middle of the last (eighteenth) century; another statement is that it derived its name from being found in the garden of the Castle of Grafenstein in Sleswick; and Diel says that it was supposed by some to have been introduced from Italy. Be this as it may, it is a common apple throughout Germany and Sweden, and was received from thence into the English collections. It is undoubtedly of similar origin with the Red Astrachan and Dutchess of Oldenburg. . . . A Captain De Wolfe claimed in 1857 that he introduced the Gravenstein into America in 1826. In a letter dated October 11, 1829, published in the *New England Farmer*, Judge Buel of Albany calls attention to several German varieties, including Gravenstein. Hovey believes that they (Gravenstein) were imported into the Albany area some time before 1826.

Northern Spy

The Northern Spy is a hardy winter variety grown commercially in Michigan, New York and New England. It originated in the orchard of Herman Chapin at East Bloomfield, N. Y., from a seedling grown from seed brought from Salisbury, Conn., in 1800. Sprouts from the original tree were transplanted by a Mr. Humphrey, who succeeded in getting the first fruits from these sprouts. The variety was confined to the above named locality for several years, and about 1840 began to be distributed to other parts of the country. In 1852, the American Pomological Society recognized it as a variety of promise, and it has spread ever since. It is considered one of the very finest winter dessert, cooking and baking apples. It has been extensively planted in New York and other portions of the northeastern apple growing region. It cannot be grown successfully in too warm a climate.

Fameuse or Snow Apple

The history of the Fameuse or Snow apple is not definitely known. Some authorities say that it is of American origin, while others say that it originated in France or other European countries. S. A. Beach in "The Apples of New York," Volume II, 1905, gives a very interesting historical account which is quoted from a discussion of Chauncey Goodrich of Burlington, Vt., in 1851. The following account is quoted or paraphrased from Mr. Goodrich's statements: "It is here (Burlington, Vt.) one of the most common as well as oldest varieties; hundreds of barrels are sold in a single season in this town alone. . . . All American writers call it a Canadian apple; of this I think there is no proof. One hundred and twenty years since (1731) the French planted this variety on the shores of Lake Champlain, opposite Fort Frederick on Crown Point, at a place called Chimney Point—more than 50 years before any other permanent settlement was established. From these old trees scions have been scattered through Vermont, and called the Chimney apple. A very intelligent and highly educated French seigneur residing on an old seignary 80 miles below Quebec told me that this was one of the first varieties of apples planted on the place; that the trees were very old and were brought from France. The early French settlers planted the same variety at Ogdensburg, Detroit, and other places on Lakes Erie and Ontario, where it is still known as the Snow apple; also at Kaskaskia Ill., more than 150 years since (1700), where the old trees are still productive, and apples from them are sent to St. Louis, etc. The same apple may be found in France, and in London of the growth of France."

According to this above mentioned authority, it is hard to believe that an apple which was known in 1700 could have been found as a seedling in Canada, grown, propagated and disseminated throughout the Lake Erie-Lake Ontario region in time so that

the trees could have been bearing and recognized as a regular variety. It is logical to believe, therefore, that the Fameuse had its origin somewhere in Europe. Another point tending to support this view is the fact that it was usually found in old gardens along with other prominent European varieties of apples, pears, etc.

To quote further, "On the other hand, the testimony of European pomologists is mostly against the theory of European origin. . . . Most European authors unhesitatingly assign a Canadian origin to the variety and the variety seems too little known, too little appreciated, too little at home with European surroundings for us to believe that it originated there. Those who call it an European apple usually assign its nativity to France; but Le Roy, the greatest of all French, and of perhaps all European, authorities did not know the variety. He says that Le Lectier, cultivated the Pomme De Neige (synonym of Fameuse) at Orleans (France) before 1623; but Le Roy did not know whether or not this was the same Pomme De Neige grown in Canada. In fact, he says, 'I have never, up to the present time, met this apple Pomme De Neige on our soil. In place of it they have always sent me Calville De Neige, ripening from January to March.' Most of the Snow apples of Europe, in fact, are white-skinned and totally different from the Snow or Fameuse of America."

Whether the Fameuse came from the European continent or not, it was disseminated by early French missionaries. Quebec being founded about 1600 and Montreal about 1641 and the seignary du Cote de Beaupre being granted in 1636, giving nearly 100 years to 1700, when the first account of the variety was known, leads one to believe that perhaps a Canadian origin was possible. Early distribution of apples was by means of seeds and it is believed by many that the Fameuse originated from seed planted in Canada which came from Europe from perhaps some of the Fameuse-like apples of France. A. J. Downing in "Fruits and Fruit Trees of America," 1847, attributes its name to the snow-white color of the flesh, "or as some say, from the village whence it was first taken to England." He lists it as Pomme De Neige with Fameuse as a synonym. Without a doubt the Fameuse is one of our oldest American varieties. It is spread over all of the northern region of the United States and southern Canada.

Rome

S. A. Beach in "The Apples of New York," Volume I, 1905, states that the Rome was originated by H. N. Gillett in Lawrence county, Ohio. It was brought to the attention of an Ohio convention of fruit growers in 1848 as a new variety. Folger and Thompson in "The Commercial Apple Industry of North America," 1921, say that the Rome originated on the farm of Alanson Gillette at Proctorville, Ohio, in 1817 and was known as Gillett's Seedling until 1832. Downing does not mention it in his book of 1847. Extensive plantings are found in the Pacific Northwest, Ohio, New York and some other eastern states.

Rhode Island Greening

The Rhode Island Greening is one of the prominent eastern apples, being second only in importance of size of crop to Baldwin in New York and some of the New England states. It is not known for certain where the Rhode Island Greening originated, but it is believed to have been near a place now known as Green's End near Newport. Adams in the *American Gardener*, 1901 (quoting "The Apples of New York"), says "where in olden times, there was a tavern kept by Mr. Green who raised apple trees from seed. Among the trees thus produced was one which bore a large green apple. The scions of this tree were in such demand. . . . that the

tree died of exhaustion. The fruit which resulted from grafting with these scions was known by different names—in Rhode Island as the 'apple from Greens Inn.' A tree on the farm of Thomas R. Drowne in the town of Foster at Mt. Hygeia was supposed to be about 200 years old in 1905, according to members of the family. This was believed to be the original Greening tree until scions were taken from sprouts which grew up from the base of the tree. These sprouts were grafted onto other trees at a prominent state experiment station in 1900. The result showed that these scions were not Greening and therefore that the tree on the Drowne farm was not the original Greening tree. A tree was located on the farm of Frederick Winslow, which was called "Daughter Tree." It was Rhode Island Greening, and the story is that this was a limb of the mother tree which was blown off in a windstorm of 1815. The limb was thrust into the ground and took root. It is said that the mother tree was planted in 1748. Records of Greening trees being planted on the farm of Lemuel Angell about 1750 (according to Mr. Adams, 1901) are still in possession of the family. There is not much doubt of the fact that the Rhode Island Greening originated in the Pygmy State however.

Dutchess

Dutchess is one of the most popular and valuable of the Russian apples that have been introduced into this country. It is one of the first four—Dutchess, Tetofsky, Alexander and Red Astrachan—to be introduced into this country from Russia and Scandinavia. These four varieties were brought here by the action of the Massachusetts Horticultural Society from the London Horticultural Society about 1835. Beach states also that it was introduced into England from Russia about 20 years before that. In Europe it is sometimes called Charlamowsky or Borowitsky.

Red Astrachan

This is another Russian type apple that was introduced into the country by the Massachusetts Horticultural Society in 1835. Downing in "Fruits and Fruit Trees of America," describes it as "A fruit of extraordinary beauty first imported into England from Sweden in 1816."

Wagener

The Wagener is a highly flavored winter apple that has been disseminated throughout the East quite extensively. In 1791, a Mr. Wheeler brought a quantity of apple seeds from Dover, Dutchess county, New York, to Penn Yan, Yates county, New York, and sowed them in a new nursery he was starting in what was then wilderness. He sold the nursery in 1796 to Abraham Wagener, who planted the trees on his place in what is now Penn Yan, N. Y. The apples were named after Mr. Wagener, who was responsible for their first fruiting.

Thus we conclude our discussion of the historical background of some important varieties of one of the world's greatest fruits. Many varieties have not been touched, but a portion of the more interesting accounts of the origin of our commercial varieties has been covered. Let us all heed the wisdom of the heathen gods of the North that believed in the immortality of the apple and who set the Goddess Iduna to watch over them that they might eat them as a dessert to keep from growing old.

Jimmy giggled when the teacher read the story of the man who swam across the Tiber three times before breakfast. "You do not doubt that a trained swimmer could do that, do you?" "No, Ma'am," answered Jimmy, "but I wonder why he did not make it four and get back to the side where he had his clothes."—*Pittsburgh Chronicle-Telegraph*.

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Storage Cellar Construction

By N. S. Grubbs

RECENT investigations and conclusions taken from a number of underground storage cellars in Pennsylvania indicate some new principles that mean much to fruit growers. It is found that where a frost-proof structure is built on which is placed two or three feet of soil, the temperature of the cellar is maintained through the movement of cold air and

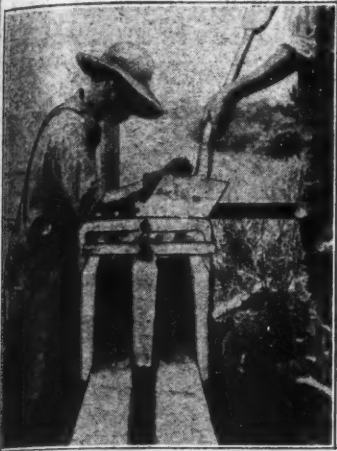


Figure 1.—Special forms employed in constructing a double concrete wall for a storage cellar

moisture through the walls, floor and ceiling of the structure.

Figure 1 shows the erection of a double wall concrete cellar at Sunbury, Pa., by Thomas A. Trexler. The plans called for a cellar 30 by 70 feet, eight and one-half feet high, covered with two feet of earth. The walls carry a concrete roof slab six and one-half inches thick. The footings and wall were made of a 1:2:4 mixture of concrete, using good clean sand and hard well-graded limestone for coarse aggregate. Patent movable forms were used to erect the double walls, which consist of four inches of concrete, two inches of air space and four inches of concrete. The two four-inch walls are tied together with steel ties placed with three-foot centers.

Figure 2 shows the walls completed and part of the roof slab in place. The roof slab is supported by the walls and two rows of 12 by 12-inch concrete columns with 10 foot cen-

raised one inch above the deck before attempting to place the concrete for the roof.

The concrete was placed with wheelbarrows on runways supported by blocks to a height of six and one-half inches. As the material was placed, care was taken to spade and tamp the concrete tight surrounding the steel.

Both ends of the cellar are provided with driveway doors, making it convenient to drive through as well as regulate the supply of fresh air for ventilation purposes.

It is claimed the cellar was constructed at a cost of from 25 to 30 cents a bushel storage capacity.

Farm labor was used exclusively for the job.

Mr. Trexler can store at least 10,000 bushels of fruit in the cellar and during last winter maintained a temperature from 29 to 36 degrees without any means of control other than the large doors and two two by two-foot outlet ventilators in the roof supplied by air through two 12-inch inlets on either side of the driveway doors, level with the footings.

The floor is made of wooden slats raised eight to 10 inches from the earth, providing ample space to permit air circulation.

It has been found that apples and potatoes keep better when stored in crates with slats than when stored in bulk or barrels.

Prizes Offered for the Best Black Walnuts

THE NORTHERN Nut Growers' Association is offering \$50 as a first prize for a black walnut tree superior to any now being propagated. Eight other cash prizes are also being offered. The leaders of the association believe there are many nut trees in the country which produce better walnuts than trees of varieties now being propagated. By finding such trees, and by making trees of the improved varieties available, the association believes it will be rendering a service both to the owners of the trees and the public.

Any one believing he has a walnut tree of exceptional merit can enter the contest. Secure two dozen or more of the nuts and mark the tree carefully. The nuts from two or more trees can be entered. Send the nuts from each tree in a separate package,

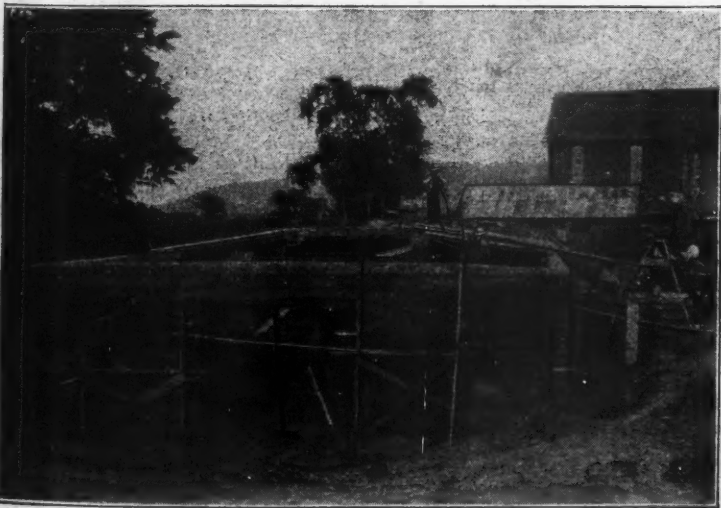


Figure 2.—Walls completed and part of the roof slab in place

ters. Two concrete beams supported by the columns run from end to end. The columns and beams are well reinforced. The deck or form work supporting the roof is shored up with temporary studding placed underneath to make the job rigid until the concrete sets.

The plans call for reinforcing placed in regular order, tied together and

and mark the trees and the packages plainly so that no confusion will result.

Size of the nuts is not the only consideration. The kernel must be plump, light colored and of pleasing flavor, and it must come out of the shell in whole halves or quarters. The best nuts may be of small or medium size.



Making a hard job easier

The time will never come when farming will be listed as an easy job. But groping in the dark is one hardship electricity will abolish.



The MAZDA lamp as it is today is one of the greatest achievements of the General Electric laboratories. The Company also manufactures many electrical products which are used on the farm. The G-E Farm Book describing these products may be obtained from your local light and power company.

On farms electrically equipped, power lines bring clean, safe lighting to the darkest corners. And the same power drives the motors of many labor-saving machines.

Not since the days when electricity was first harnessed to industrial use has it found a greater opportunity for human emancipation than in its application to farm use.

GENERAL ELECTRIC

44-54C

The prize winners must furnish two lots of scions or cuttings at the request of the association. All nuts now being propagated in the United States or Canada are eligible. The owners of good trees will find opportunity to sell cuttings at 10 cents a foot. Valuable new varieties will be named after the sender, and the name will go on permanent record. A report will be made on the merits of all nuts received by the association.

The contest closes February 1, 1927. Send nuts and letters to Dr. William C. Demling, president, Northern Nut Growers' Association, Hartford, Conn.

A Quarantine Against European Codling Moth

BECAUSE of the presence of the European codling moth and other serious insects in Europe, the Department of Agriculture has issued an order, effective October 1, 1926, which prohibits entry into the United States of all chestnuts, walnuts, filberts, cobnuts and acorns from Europe, except under permit and under proper safeguards.

During 1925-1926 the European codling moth was found in seven shipments of nuts from Italy, four from Spain and two from Portugal. What

appeared to be the same insect was found in 30 shipments arriving in Boston and New York from Italy. In addition, the chestnuts were frequently found infested with weevils.

All of the nuts named are hosts of the European codling moth. All shipments of these nuts which are found to be infested will have to be disinfected or refused entry. The method employed for the drying, curing or processing of these nuts in Europe do not entirely remove the risk of introduction of the insect.

SHIPMENTS of canned fruit from the United States during the year ending June 30, 1926, totaled 243,973,000 pounds. A total of 200,357,000 pounds was shipped during the preceding year. The largest increases during the past year occurred in the exports of peaches, pineapples and pears.

The United Kingdom is the largest buyer of American canned fruit. Its purchases during the past year showed greater gains than the purchases of any other country. Substantial increases also took place in the shipments to Germany, France, the Netherlands and the Dutch East Indies.

Guest—Walter, can't you bring me something with a kick in it?

Walter—Yes, sir. I'll get your check, sir.—"Bagology."

"Fortify for Fire Fighting"

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Pyrene
FIRE EXTINGUISHER



AUTUMN Days mean bonfires, burning leaves and flying sparks.

Wherever a hot spark lights it may plant the seed of a treacherous fire. Be ready to snuff it out before it grows beyond control.

An Improved *Pyrene* Fire Extinguisher protects you against the carelessness of others and makes your home 100% safe.

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Write for free booklet, "Safeguarding the Farm against fire."

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For the Tourist or Transient Guest

Who prefers restful and homelike atmosphere. Just a short walk from the business, shopping and theater districts, yet away from the downtown noise and congestion.

RATES:
\$3.00 and \$3.50 a day
All Outside Rooms
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DETROIT

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Wear
A Real
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Brown's Beach Jacket

and enjoy warmth and comfort on the coldest days. Made for rough-and-ready outdoor service of warm knit cloth that will not rip, ravel or tear. Three styles—coat with or without collar, and vest—all are cut to fit snugly without binding. Comfortable to work in.

Ask your dealer.

BROWN'S BEACH JACKET COMPANY
Worcester, Massachusetts

Rambles of a Horticulturist

(Continued from page 7)

the westerly winds from the warm Japanese current. These factors, coupled with relative soils and excellent cultivation methods, enable the plantations to endure the dry spell without apparent injury. We visited the section in the midst of the dry season, and the plants were as healthy and vigorous as could be.

Raspberry Leads in Importance

The raspberry leads in importance. The Cuthbert is practically the only variety grown. The plants reach full bearing in about three years, and no one seems to know how long a planta-



Prof. M. A. Blake of New Jersey making a detailed examination of Cuthbert raspberries on the W. E. Turner place

tion will continue to be profitable. Many plantations 10 years old are still producing successfully. The rows seem somewhat close and the plants thick in the rows, but the extreme productivity indicated that the plants were not suffering from overcrowding. Because of the high priced land (much of it being worth from \$1000 to \$2000 an acre), space must be economized to the utmost.

Diseases and insects have not been serious and very little spraying has been practiced to date. There is much concern at present about mosaic, which has been found in various plantations.

The blackberry ranks next in importance to the raspberry. The Evergreen is practically the only variety grown. This crop is paying better than raspberries at the present time. The smaller acreage of it is probably due to the fact that it takes about five years to bring the plants into full bearing, the early costs therefore be-

ing somewhat higher than in the case of the raspberry.

The Evergreen blackberry grows with tremendous vigor. The canes often reach lengths of 15 to 20 feet and are trained to stoutly braced wire trellis. The producing canes are tied to an upper set of wires, and the young renewal canes are trained to a lower set of wires placed about two feet from the ground. Separation of the canes in this manner enables growers to easily remove the old canes, which die after producing the crop, and elevate the new canes to the upper position. Some growers do this work soon after the harvest closes; others do it during the following winter.

The Evergreen blackberry seems to be longer lived than even the raspberry in the Puyallup section. Some patches are 20 years old and are still bearing good crops. Insects and diseases have not proved serious to date. Anthracnose and cane gall, which seriously affect the Snyder, do not seem to bother the Evergreen appreciably.

There is need for a good bush variety of blackberry to fill in the harvesting gap of about two weeks existing between the ripening seasons of the Cuthbert raspberry and the Evergreen blackberry. Some authorities believe that possibly a good bush variety resistant to cane gall and anthracnose can be created by crossing the Evergreen with one of the better bush varieties, such as Eldorado or Snyder.

The Evergreens have a picking season of about five to six weeks. The best berries are obtained when the fruit is allowed to hang about a week after becoming black. When picked before that time the fruits lack high flavor and have not reached their largest size.

Loganberry Winterkills at Puyallup

Loganberries are grown to only a small extent in the Puyallup section. They are too subject to winter killing to grow successfully there, being the tenderest of the small fruits in this respect. The patches which we saw, however, were heavily laden with fine fruit, which was just beginning to ripen. The crop is practically all canned, since the berries must be allowed to become quite ripe before being picked in order to develop high quality. The acreage of this crop is diminishing.

Strawberries are grown in considerable quantity in the district, but this crop is not nearly as important as that of the raspberry and blackberry.

The section is especially well equipped with marketing organizations and canneries. The Puyallup and Sumner Fruit Growers' Association, organized in 1902, is still operating successfully. In 1925 it had about 600 members. It operated a canning plant as a subsidiary until about 1923, when, during a reorganization, the canning

plant was sold. The Washington Berry Growers' Association, organized in 1921, now has 800 members and operates a canning plant. These two co-operatives have been working in close harmony, it is stated, and have been able to stabilize and enlarge the market for their growers to an extent that is not enjoyed by the growers of many sections in the Northwest. There are also two local commercial canneries at Sumner and Puyallup.

Government Estimate of October 1 for Apples, Pears and Grapes

THE FOLLOWING estimates of production for apples, pears and grapes on October 1 were issued by the Bureau of Agricultural Economics on October 11:

APPLES (Commercial Production).

State.	Forecast Oct. 1, 1925.	Final Estimate, 1925.
Total U. S.	28,508,000*	28,041,000
Maine	432,000	645,000
New York	6,819,000	6,250,000
Pennsylvania	1,625,000	1,011,000
Virginia	3,072,000	1,440,000
West Virginia	1,502,000	749,000
Illinois	1,234,000	1,164,000
Michigan	1,531,000	1,700,000
Colorado	250,000	860,000
California	2,049,000	1,697,000
Missouri	569,000	645,000
Arkansas	734,000	621,000
Idaho	1,127,000	1,700,000
Washington	8,470,000	8,570,000
Oregon	1,265,000	1,295,000

PEARS (Total Production).

Total U. S.	25,624,000*	19,820,000
New York	1,992,000	3,045,000
Michigan		450,000
California	9,815,000	6,667,000
Washington	2,965,000	2,200,000
Oregon	2,048,000	1,500,000
Colorado		510,000

GRAPES (Total Production).

Total U. S.	2,357,355*	1,967,160
California	2,047,850	1,817,000
New York	105,223	51,840
Michigan	67,850	22,100
Pennsylvania	28,571	11,180

Quarantine Currants and Gooseberries

EVERY state of the Union is now under quarantine to prevent the spread of the white pine blister rust. This quarantine became effective October 1, and its principal object is to prevent damage to the white pine lumber industry.

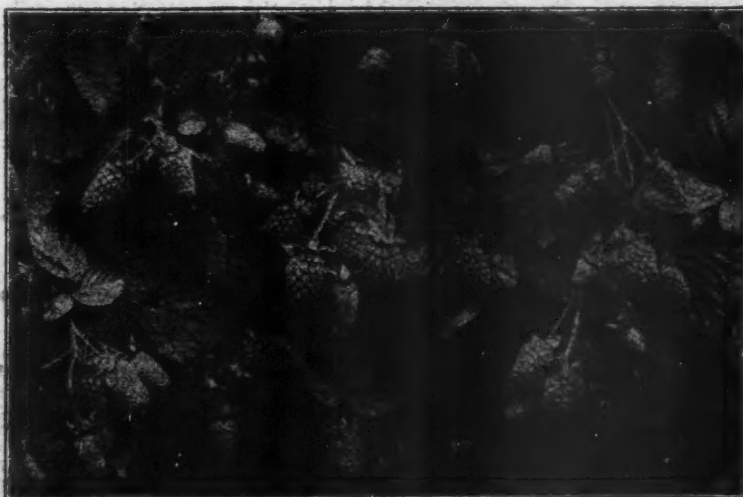
The fungus which causes white pine blister rust completes one of its stages on currant and gooseberry plants. The quarantine prohibits the moving of currant and gooseberry plants (wild or cultivated) from any state or District of Columbia into or through any other state, except under conditions described in the detailed rules and regulations. All interstate shipments of nursery stock or other kinds which harbor the blister rust, shall be subject to inspection at the place of shipment or destination or any point en route. Growers and nurserymen who are particularly interested in currants and gooseberries should write to the Department of Agriculture, Washington, D. C., for a copy of Quarantine No. 63, which gives the detailed rules and regulations covering this quarantine.

THE 1926 PRUNE CROP of France is estimated conservatively at 8800 to 11,000 tons, according to the American Consul at Bordeaux, France. Toward the close of the season it was found that the trees were not so heavily loaded as supposed early in the season, and furthermore the fruits when dry did not give so heavy a weight as was anticipated. This situation accounts for the reduction from early estimates.

An Irishman was telling of his war wound. He said: "An' the bullet went in me chest here and come out the back!"

"But," said his friend, "it would have gone through your heart and killed you."

"Faith, an' me heart was in 'me mouth at the time!"



Loganberries as they grow in the Pacific Northwest. This picture was taken at Newberg, Ore. (Courtesy Portland Chamber of Commerce)

Storm Damage in Southern States

WHAT SEEMS to be trustworthy information is now available regarding the damage done by the hurricane in the south on September 18-20. A report of the Florida Citrus Exchange includes the following figures:

Satsuma Crop in Alabama Suffers Little

Dr. O. F. E. Winberg of Silverhill, Alabama, reports that the Satsuma orange crop of Alabama, Mississippi and western Florida was injured to the extent of about 10 per cent. This includes fruit blown off or damaged by bruising. There was practically no damage to the trees, and the leaves do not now show any damage. The rainfall at Silverhill was 12 3/4 inches during the day of the storm.

	ORANGES (boxes)	GRAPEFRUIT (boxes)
	Original Estimate.	Original Estimate.
DeSoto County.....	10,000	278,000
Lee County.....	181,000	452,000
DeSoto and Hardee Counties.....	1,071,000	271,000
Manatee County.....	246,000	622,000
Hillsboro County.....	709,000	190,000
Pinellas County.....	361,000	799,000
Balance of state.....	5,564,000	1,857,000
Total.....	9,600,000	7,400,000

A report of the Orlando office of the Bureau of Agricultural Economics, dated October 11, places the Florida citrus crop at 9,000,000 boxes of oranges and 6,000,000 boxes of grapefruit. The figures show a reduction from the September 1 estimate of 600,000 boxes of oranges and 1,400,000 boxes of grapefruit.

Grapefruit suffered a heavier loss than oranges. The present estimate indicates a production of 1,500,000 boxes less than last year. Most of the early grapefruit was blown off or made unfit for shipment.

The greater portion of the orange crop is grown in sections outside the storm area. The heaviest loss of oranges occurred in the seedling crop. Tangerines, which are included in the orange estimate, showed almost no loss.

Some of the packing houses in the storm's path were destroyed, and practically all of them were badly damaged.

The Satsuma crop promises to be very good this year. The growers have successfully combated insects and diseases. The fruit will be of large size, splendid in appearance and of excellent quality. The harvest is starting about 30 days later than normal, due to the late spring.

Pecan Crop Suffers Large Loss

C. A. Simpson of Semmes, Ala., reports that the damage to pecans in the storm area of Alabama and Mississippi ranges between 50 and 80 per cent. A few trees were blown down, and quite a few branches on other trees were broken, but the principal damage was done to the season's crop of nuts, which had not fully matured at the time of the storm.

Citrus Fruit Growing in South Africa

(Continued from page 4)

tions of refrigeration in transit. Refrigeration conditions on the Union Castle Line (the mail streamers) are good, but it was necessary this season to use several boats that were not fully suited to carrying oranges under refrigeration.

The bulk of the fruit is packed by the individual grower upon his own farm. The greater part of the question of decay in transit is due to the fact that growers as a whole have not fully appreciated the doctrine of careful handling and packing. Great interest is being shown at the present time in co-operative orange packing houses, and several are already in operation. Co-operative packing can never apply to the industry as a whole as it has in California because the plantings are for the most part very widely scattered and roads are very poor. As far as the writer knows, every house, with but one exception, is equipped with Stebler-Parker machinery from California.

California Methods Being Adopted

The writer does not wish to give an unfavorable impression of citrus growing in South Africa but merely to point out the most important problems before the industry at the present time. Many growers are making a splendid success of orange growing; quite a number are fully aware of the steps followed in California and are doing all in their power to incorporate California methods into South African citriculture. For example, Sir Percy FitzPatrick, of Uitenhage, Cape Province, made two trips to California to observe methods and conditions there. The results of his observations are to be found in his estate, "Amanzi." Scientific fertilization is followed; individual tree records are used to determine the profitable and unprofitable trees; a Stebler-Parker house is used for the packing of the fruit; and the nursery trees turned out are budded solely from high-producing trees of the correct type.

As an example of what can be done, a grapefruit grove containing 2000 trees, six years of age, produced this last season 6000 cases of export fruit, the grower, J. P. Mackie Niven, re-

alizing slightly more than £1 per case f. o. b. shipping point. The writer has seen many trees carrying from four to 10 cases of excellent fruit per tree.

Native labor is used for all manual work, and while natives are paid but 50 cents a day, the labor is not cheap. The drag of this inefficient, unreliable and inexperienced labor is felt, not only in the citrus industry, but in every walk of life.

Seasons Reversed

As South Africa is below the equator, the seasons are reversed, as compared with those in America. This is a decided advantage to South Africa in that fruits of all kinds can be put on the British and European markets in their winter time. Thus, Navel shipments commence here in June, the beginning of winter. Valencia shipments, coming somewhat later, usually bring a slightly lower price, as toward the end of the Valencia season heavy shipments of oranges from Spain reach the overseas markets.

The rootstocks used chiefly are the rough lemon and sweet orange, mainly the former. The sour or Seville orange, so universally used in California, has proved, for some unknown reason, to be entirely unsuited to South African conditions. Hail storms cause considerable damage in parts of the Transvaal.

America need not fear competition, within her own boundaries, from South Africa, as fruit export to the United States is not permitted by the latter country on account of the presence of the dreaded Mediterranean fruit fly (*Ceratitis capitata*) in South Africa. American fruit growers, as their production increases, will look more and more to British and European markets, and as California ships oranges to these markets practically throughout the year, competition with South Africa is bound to be keen in those markets.

Conclusion

Citrus fruit growing in South Africa, as has been shown, is developing rapidly and shows great promise of becoming a truly large industry. California has 270,162 acres planted to



MANY years ago a California fruit-grower planted fruit trees in soil which was shattered and loosened by exploding small charges. The trees matured faster and yielded larger and earlier crops of better fruit than those trees planted in the usual way. Today America's leading orchardists and nurserymen recommend and practice the methods introduced by the California fruit-grower.

Naturally, trees planted in ground mellowed to a depth of five or six feet and fifteen to twenty feet wide thrive better than trees set in a shallow bowl of hard, impervious soil. The root system extends over a wider area thereby obtaining necessary plant food to ensure a vigorous, permanent and profit-yielding tree. The porous soil absorbs the excess surface water so greatly needed in dry seasons, when many young trees die because of lack of sufficient moisture in the soil. Besides improving soil conditions, the blasting method destroys fungus, nematode, and other orchard soil diseases.

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citrus, and, comparatively speaking, the available acreage is about exhausted. South Africa, on the other hand, has more land available for citrus than any other country in the world. No definite survey has been made, but at least 1,000,000 acres, and probably twice that figure, are suitable for citrus growing. All that is required is capital and an increased white population for the opening and clearing of this new land. In most places water is abundant and cheap; in fact, a charge of \$10 per acre per year for water is regarded as very high. In California water rates are frequently \$50 an acre per year. The frost danger here is negligible; vast areas are unplanted which are entirely frost free.

Although South Africa is a great potential competitor of the United States in fruit growing, it also offers excellent opportunities for those who wish to take up citriculture but cannot start in Florida or California due to the large amount of capital required. Young men with scientific and practical training in citrus fruit growing have an excellent future here, as South Africa at present is in the same stage of development that existed in California 20 years ago. Progress will naturally be more rapid because of the lessons being learned from California, the pioneer in citriculture.

Warehouse Receipts for Canned Foods

CANNED foods in storage can now be handled under the United States Warehouse Act. This means that warehouse receipts can be used for obtaining loans on these products. Growers' associations and canning organizations in different parts of the country have been attempting to bring about such a situation for about two years, and their efforts have at last proved successful.

The use of warehouse receipts will make it possible to finance canning operations more generally and to the greater advantage of all concerned. This method of financing will relieve growers' associations and canners whose financial ability is limited, and it will enable them to avoid the necessity of dumping their products on the markets during unfavorable periods.

Did Not Want Any Presents

Two Irishmen, one accompanied by his wife, met on the street. Said Pat to Mike—"Let me present my wife to ye."
"No thank ye," replied Mike. "O! got one of me own."—Exchange.

The Orchard Home Department

What's Your Compensation?

WHAT kind of compensation does your life bring to you? Compensation has a pleasing sound, like the cheerful jingle of coin. To the laborer, it suggests so many dollars for a day's work. To the expert lawyer, it suggests so many, many more dollars for a few minutes' advice. Adequate financial return for service rendered is one kind of compensation.

The woman in the average orchard home doesn't get much of it, no cash payment for all she may do in caring for a family, including husband, dogs, children, chickens and sometimes hired men.

She cooks three meals a day, not because she thereby earns a cook's wages, but because by doing so she saves them. If she sews, does she send in a dressmaker's bill? No, indeed, she merely saves the money that would otherwise be paid to a sewing woman. If she loses her own rest night after night sitting up with a sick member of the family or a neighbor, no such princely reward as the trained nurse would rightfully demand even fits across her imagination.

Yet She Earns a Reward

Her compensation lies in other than the material interpretation of that term. She finds it in that uplift of the spirit which comes to those who feel themselves necessary to the comfort and welfare of others.

"It is asking too much to expect both the satisfaction of doing good and the rich reward of gratitude," said a keen observer. Yet the wife and mother, and kindly friend and neighbor, does, in addition to the approving satisfaction of her own conscience, generally receive love and gratitude. In our opinion, that is ample reward. Indeed, it is priceless.

See the Other Side

There's yet another very important but, less generally considered side to compensation. If it's a poor law that doesn't work both ways, the so-called Law of Compensation is one of the most just in its workings for good or ill. Whatever the award in any case, it's almost sure to be deserved.

It is a big mistake to consider only agreeable compensations. The reward of the selfish, the unkind, the dishonest, is as sure as that of the loving, the generous and upright.

The world doesn't really treat people so ungratefully as many of them suppose. We have a comfortable way of calling to mind the nice things we may have done for others and of conveniently forgetting, if indeed we ever noted, trivial acts or omissions of quite another nature.

Listen For the Echo

"As we call into the wood, so the echo comes back to us." That echo is not always sweet. I knew two friends equally influential, gifted and excellent men—one far more beloved than the other. Of them it was said, "It's pleasanter to be refused a request by Richards than to have it granted by Taylor."

This, no doubt, would strike Taylor as very unjust. He made as many sacrifices for others as his friend did. But he failed to call sweetly into the wood. He let it appear that he was inconvenienced or annoyed. He gave his time, his advice, and even his money, but he left the recipient with a slight sense of humiliation, or, at least, of being unwelcome.

Be a Cheerful Giver

The Lord loveth a cheerful giver. So do we all. Taylor was not that and he received from life his just compensation. He was honored for his uprightness, respected for his intellect, equally with his friend—but

he was not so beloved for his kindness.

Out of the Mouth of Babies

Most of us could take a lesson from a wee girl of three who, saucily enough, had disobeyed her grandfather. Presently she came trotting up to him where he sat alone in his room.

"Gran'daddy," she inquired with transparent innocence, "why you come here all by yo'self?" "I came," he answered reproachfully, "because it made me sad to see a little girl so disobedient. Why did you come?" "Well, gran'daddy, I came to hug," she stated confidently.

What echo do you think came back to her, who called so lovingly into the wood of gran'daddy's displeasure? There would be nothing left to hurt and rankle if we were but generous enough thus to pull the sting from the offenses that the most considerate of us are guilty of at times. What compensation are we earning?

Why Mothers and Babies Die

EVERY now and then I tell something to our Orchard Home women about the shocking and preventable loss of infant and maternal life. I do this because the subject lies near my heart and is very important.

We need to have some things repeated, like daily meals or the reading of the Ten Commandments. Thousands are going to become mothers this year for the first time.

It will be sad when so many of these young things and their first born die, as they surely will, needlessly. It will be still sadder for the mothers to go who already have children, little ones who will need them sorely for years to come.

The Right to Be Well Born

Since it is part of that wonderful mother love to think of her child before herself, our appeal to prospective mothers might well be to consider their babies' right to be well born. This means that the infant has been given every chance for life that prenatal and confinement care of the mother can assure.

As a nation, we hold the humiliating distinction of having one of the highest maternal mortality rates in the civilized world. There are close to 20,000 maternal deaths annually in the United States, resulting largely from lack of proper pre-natal and confinement care.

At least 100,000 still births occur in addition to the approximately 100,000 babies under one month of age who die every year from "causes that have their origin in the care and condition of mothers during pregnancy and confinement." This is an appalling waste of human life.

Special Effort Needed

Officials of the Children's Bureau feel that special emphasis should be laid upon "the effort to reduce deaths among both babies and mothers."

This reduction depends upon "improvement and extension of facilities for pre-natal, confinement and post-natal care." Such a program is expensive.

Money, the root of all evil, is yet so powerful that it is also the root of every wide-spread betterment of the race.

False Pride Restrains Some

An enterprise for saving hundreds of thousands of mothers and babies every year, is too big for individual philanthropy. Even such large units as states seem unable to cope with the urgent need.

Our government holds itself in readiness to co-operate with every

state that will accept federal aid. Some refuse such aid. It's an invasion of State's Rights.

But what of the right to live of mothers and babies—220,000 of them every year? It can't be that the objection is sustained by the majority of women. So many infant lives outweigh technicalities in the minds of mothers. The women of every community can, at the least, support to the extent of their ability such agencies as promote the safety of the coming generation.

For Beauty's Sake

BEAUTY is more important in our lives than many appreciate. It not only pleases the eye but invigorates the spirit. That's why we send flowers to sick friends.

The blossom season has passed from our gardens; let it continue in our houses. The forlornness of a flowerless land will not depress us while we have growing and blooming plants to watch and tend.

And what an air a few potted plants can give. However simple its furnishings, there's an aspect of refinement about the room where flowers bloom in the windows.

Even artificial flowers, if well chosen and not too conspicuously placed, are better than none. But they're a long, long way behind the natural ones. They lack the poetic appeal to the imagination which is the true spirit of a blossom. Next best to the genuine growing plant, and not to be despised if pot plants or fresh cut flowers are impossible, are the "everlasting flowers" now in vogue. The pink, lavender and creamy colors are soft and pretty and they are not very expensive.

I'm Simply Starving

DESIGNERS of fashions must live. That's why, just as soon as we've succeeded in abolishing our curves to fit the one-dimensional dress, we get all wrought up over the announcement, "Paris is wearing them shorter," thus reducing the single dimension to a minimum.

This worries us because we, in the orchard homes at least, still draw the line at a costume which abolishes length, breadth and thickness, all three at once, leaving us only Prof. Einstein's fourth dimension—time—to come to our rescue.

But since such a mode would put the designers themselves out of business, there follows a hint that "Paris is wearing them wider." "Paris dressmakers endorse fuller figures."

Well! What of it? The person who writes that very likely has never been to Paris. If Paris is indeed cultivating fuller feminine curves, we may be sure that in good time the orchard woman will expand to fit requirements.

Meantime, few women will permit themselves the indulgence of unlimited dips in the box of chocolates or the cookie jar until better assured that their hard-earned loss of weight is all for naught.

Several almost hysterical articles have appeared of late, tearfully depicting the wretched condition to which the mass of American women have reduced themselves by starvation. Piteous instances are presented of happy homes wrecked by the too exclusive use of pineapple.

The warning may be timely even if exaggerated. Some women have injured their health by ill-advised dieting, or by taking harmful drugs. Any naturally plump woman should consult a physician before undertaking a strenuous course of dieting. If he convinces her that much loss of weight will mar her complexion and

wrinkle her face, she's not apt to persist in an extreme course.

The fad for thinness has probably done much more good than harm. There are two excellent reasons for believing this. Doctors for many years have insisted that most people ate too much. They said that by unbridled consumption of food we were digging our graves with our teeth. They urged that everyone should rise from the table while still a little hungry.

Though we may doubt the doctors, we can count on human nature. Martyrs may be found but they are not plentiful. The food appeal is the strongest and most universal of man's many temptations.

The great mass of women lack the iron self-control necessary to voluntarily suffer severe pangs of hunger for any considerable time. And there can be no doubt that sensible women, who after all form the large majority, eat and will continue to eat the amount and kind of food which experience has taught them promotes their best health.

Let in Fresh Air

AT THIS season fresh air is cold air, but still we mustn't keep it out. Too many housekeepers do that in winter in sections where the weather is severe. Even though we've outgrown the custom of sewing babies into their clothes in autumn, of postponing our bath until spring or of nailing down the windows, there's a tendency not to ventilate the house sufficiently in winter.

Don't think it's enough if you raise the sash a timid inch in your bedroom at night. All through the day, the air all over the house should be renewed. Wrap up while the windows are opened if you feel chilled, but open them.

Fresh air and sunshine combat many ills. Someone who is on the verge of influenza may call and leave a few germs behind. Let the fresh air blow them away.

Stale air, even when not germ-laden, lacks invigorating quality. Are you overcome by drowsiness when sitting by the fire after meals, or reading beside the evening lamp? Try a breath of heaven to rouse you to animation. Open the windows. Let in fresh air.

Manners for Every Day

THE ONLY way to have good manners abroad is to practice them constantly at home. This is generally acknowledged and often neglected. Manners are not so easy to put off and on as our working or our company clothes. They sit strangely and stiffly on those who use them for show and allow any slipshod methods to do for the home folks.

The essence of good manners is that they shall be as natural to you, not merely as your clothes but as your very skin. Otherwise, they may slip off when you relax and betray your unaccustomedness.

Mothers frequently complain that their children take advantage of the protection afforded by company to behave contrary to the instructions given them. We must admit that no armor of good training yet invented is absolutely bullet-proof against the teasing youngster. Except in very young children, the habit of good manners, coupled with the habit of obedience, makes the surest defense against their disgracing their upbringing.

"Here's something queer," said the dentist, who had been drilling and drilling into a tooth. "You said this tooth had never been filled, but I find flakes of gold on the point of my drill."

"I knew it," moaned the patient, "you've struck my back collar button."

Peaches and the Peach Industry

(Continued from page 8)

the Peach and the Pear on the Delaware and Chesapeake Peninsula," published in 1887, more than 40 peach varieties. The most of these names seem quite modern, but the more extensively grown varieties of the present day are not mentioned, even though Belle and Elberta originated about 55 years ago. But such names appear as Alexander, Early Rivers, Crawford (both Early and Late), Mountain Rose, Foster, Reeves (Fox seedling), Smock, Beers Smock, Salter, Bilyeu and some others which most peach growers of today know, at least by name. These make Dr. Black's discussion of varieties, though published nearly 40 years ago, sound quite like references of today, or perhaps of yesterday, figuratively speaking, because a corresponding list, strictly up-to-date, could not omit the "great four"—Carman, Hiley, Belle and Elberta.

Dr. Black wrote of the time when peach growing was still in its zenith in the Chesapeake Peninsula, and when that region, including New Jersey, was still the peach belt of America. Great have been the changes in the past 30 years! Perhaps no greater influence operated to bring about those changes, at least some of the most notable of them, than the launching out of the late J. H. Hale of Connecticut into extensive peach orchard planting in central Georgia in the early 90's. While others had planted peaches in central Georgia long before Mr. Hale began his activities there (it will be recalled that the Elberta originated in that section), it was his voice, widely and frequently heard at horticultural society meetings and other similar gatherings during quite a long period of years that spread the gospel of peach planting in Georgia. Much has followed since, as the outgrowth and influence of the commercial peach development in Georgia.

parent characters would result in a progeny in which hardness would be materially more pronounced than that potentially represented by the parents. On the other hand, were it possible to go outside the species represented in our cultivated peach and use as one parent in breeding some near relative of the peach of extreme hardness, it might be possible, theoretically at least, to get a peach more hardy than any now in existence. In like manner late blossoming might be attained, and so on with other desirable characteristics.

Possibilities Limited to Characteristics of Species

But it so happens that peach breeders seem to be pretty definitely limited to the characteristics contained in the species *Prunus persica* for breeding purposes. True, the peach and the almond will hybridize. Several supposedly authentic cases of this sort are known. But the result is a fruit that is neither peach nor almond, and of value only as a curiosity. Not many species of *Prunus* will hybridize with the peach. So the

canning peaches than at any previous time. The matter of varieties fully adequate to meet the needs of the canning interests in California is rather vital at the present time. A considerable number of yellow clingstone varieties are grown in that state, especially for canning. Some of them leave too much to be desired. Others are reported to have deteriorated in recent years; in other words, to have run out. There are certain periods when the canning varieties do not adequately overlap in their sequence of ripening. As a result there may be lacking a constant and uniform supply. The need is for a series of yellow, firm-fleshed clingstone varieties that have the essential qualities for canning and which at the same time are substantially identical with one another except in time of ripening; and in the latter relationship, ripening should be in such a sequence that the different varieties will furnish a constant and uniform supply for the canners from the earliest to the latest.

Such a series of varieties would make possible the putting up of a uniform pack throughout the peach season. The fruit canned early would be indistinguishable from that put up at the end of the season. Assuming that the fruit represented varieties that had uniformly good canning qualities, such a pack, uniform in quality, grade and appearance, would have great merchandising possibilities.

The development of such a series of canning varieties of peaches is mainly and rather definitely the task of the fruit breeder. Some attention is being given to this problem.

East Wants Good Canning Variety

Even with the canning varieties, more or less faulty as they are, that are now being produced in California, the peach pack of that state supplies the highest grade canned-peach trade in the country. Interest is developing in other sections in growing and packing a grade of canned peaches which can compete with the Pacific Coast product. At the present time, the bulk of the peach crop in any year produced elsewhere than in California consists of fruit not as well suited for canning as are the varieties largely packed in that state. The most of the eastern varieties are freestones with relatively soft flesh. While many of these may make a very palatable canned product, the appearance is far below that of the yellow clingstones grown in California, even with such faults as they may possess. An interest is developing in other regions in producing a variety, or varieties, that can be grown successfully and which, when canned, will make a product equal to the best that can be put on the market.

Undoubtedly, the potential possibilities for such varieties exist within the species to which the peach belongs. If they are realized, it may be reasonably assumed that they will come through the patient, persistent, long-continued and intelligent work of the plant breeder. The opportunity awaits the man or, with equal rights demanded, the woman, who shall claim it by right of accomplishment!

Fussy old gent (reaching for wallet)—How do you sell them red flannels, miss?

Saleslady—You got me, mister, I don't understand how we do it either.

"So the snake charmer married the contortionist?" asked the lion tamer. "Yes," returned the what-is-it. "She wanted a man she could wrap around her finger."



The late J. H. Hale and his grandson examining specimens of the J. H. Hale peach

Improvement of Peach Varieties by Breeding

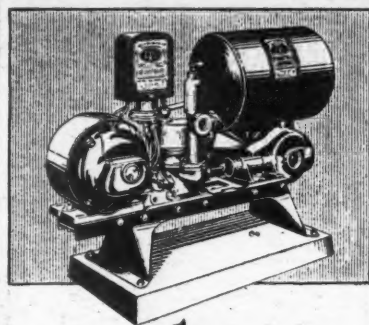
Most of the peach varieties now in the trade originated as chance seedlings, as have most varieties of other kinds of fruit, though a few have come from pits selected from particular varieties and planted with a view toward getting improved sorts therefrom. Few, if any, varieties now in the trade have developed from hand-made crosses of which both parents were known, the crossing being done with the definite intent to combine in some progeny the desirable qualities of the parents. That there are possibilities of improvement through breeding need not be questioned. A few breeders now at work on this problem have already accomplished promising results.

Admittedly, the ideal peach does not exist. Supposedly, there is only a single botanical species represented in the cultivated peach. It may be questioned whether there is included within that species the full range of characteristics to make the "ideal peach." It is a common as well as a truthful saying that water will not flow higher than its fountain head. It is doubtless equally true that no new peach resulting from breeding can possess higher or better qualities than are already represented in the parents. In other words, there is no reason to expect that a combination of any particular qualities of the parents will be present in any progeny in a form or degree that intensifies those qualities of the parents. For instance, in breeding for hardness, parents would naturally be selected that were notably hardy. Presumably, the most hardy individuals in the species would be used if that were the one object of the breeding. It is not likely that any combination of

breeder may select the variety of highest dessert quality, the one that is the most hardy in fruit bud, the hardest in wood, the best shipper, and the most productive—in fact, the best variety known to him in each of the essential qualities of the ideal peach. Then, by an indefinitely long series of combinations of all these different sorts, each superior to the others in some particular, he may obtain an approach to perfection in a single individual in which is represented the best that exists in each of the ancestors. But it is a long and oftentimes a discouraging road to travel. Perhaps that is why so few have undertaken it.

The point is that the peach breeder finds himself restricted right at the outset to the possibilities that are represented in the characteristics possessed by a single species of plant. This need not deter the breeder from action. There is need of improvement all along the line. For instance, the Elberta has a remarkably wide range of adaptability, it rates high as a shipping variety, and the tree is rather hardy; but it is tender in fruit bud and it leaves much to be desired in dessert quality. A variety having the strongly favorable characteristics of the Elberta and its weaknesses eliminated would be vastly more valuable to the peach industry and the consuming public as well than the Elberta, as valuable as that variety is. It would seem to be possible, theoretically, to produce such a peach, but it would likely require a great number of combinations, and the generations consume so much time that the ordinary breeder, anxious for quick results, is deterred from undertaking it.

Again, perhaps at the present time more interest attaches to desirable



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PUMPS
& WATER SYSTEMS
(C-15)

A New Method for Treating Foot-Rot

(Continued from page 7)

pecially where a litter of leaves and dirt had accumulated within the cavity.

Jefferies, in Press Bulletin 359 of the Florida Agricultural Experiment Station, has called attention to the possibilities of developing a new root system on citrus trees by partially girdling them and then banking them with soil. He states that this method of treatment is not only of value for getting a budded tree partly on its own roots but that it is applicable for sweet seedling trees that are



Seedling orange tree with trunk nearly completely girdled by foot-rot, showing in detail the development of new roots from the callus formed above the foot-rot lesion after having been banked with clay for two years.

attacked by foot-rot. In the case of sweet seedling trees with well-advanced cases of foot-rot, however, the operation of partially girdling the tree is an unnecessary preliminary, as the trees have already become partially girdled as a result of the disease.

The observations recorded in the accompanying photographs clearly testify to the practicability of rejuvenating sweet seedling orange trees with well-balanced cases of foot-rot. This method, however, is recommended only as a last resort, for it is far better to treat trees attacked by foot-rot before the disease progresses to such an extreme point that the tree is virtually girdled.

Insuring Against Failure of the Orchard

(Continued from page 5)

planting setting a new orchard, there is but one lesson. Be sure that the location is relatively free from frost. Be sure that the soil is deep and fertile. Otherwise, don't plant. There are enough good locations and good soils to produce all the fruit that the market will absorb at a reasonable price, and in the long run it is the growers possessing such conditions, and only those growers, that will succeed. The marginal producer may be able to "get by" when weather is favorable and prices high, but when drought or frost comes or there is the pinch of a financial depression or glutted markets, he cannot weather the storm. The only insurance policy the apple grower can take out against low grades, low yields and low prices is the one that provides a good variety, a good site and a good soil. To succeed, he must also be a good grower, but he must first choose the right things to grow and then grow them in the right place.

World Population

THE POPULATION of the world is estimated at 1,850,000,000 people. The population is increasing at the rate of 50,000 a day. There are about 150,000 births and 100,000 deaths in a day.

Dr. E. M. East of Harvard University says that the population of the United States will become stationary at about 200,000,000 people and that this figure will be reached in the present century.

CHATS WITH FRUIT GROWER'S WIFE

By HAZEL BURSELL



Serving the Holiday Dinner

WITH the approach of the holiday season Mother's thoughts will naturally turn to family reunions, children's homecomings, Christmas trees, and watch parties. And right away she begins planning just what she will serve her family and guests for the Thanksgiving, Christmas or New Year's dinner, as the case may be. She smiles in anticipation as she visions the enthusiastic reception certain of her specialties will receive, and plans to include them all in her menu.

But in her zeal to provide delectable dishes for her loved ones, she must not lose sight of the two fundamental principles of successful dinners—simplicity and dainty service.

Simplicity Is Keynote

Our Puritan forefathers, who founded Thanksgiving Day customs when they held their bounteous feast in celebration of the first harvest in the New World, were intensely active, hardy souls because of the life they lived. They could survive three days of fasting, and come through with unimpaired digestions. And such feasts as they indulged in! They sat down to tables groaning under the weight of roast turkeys, geese, ducks, venison, baked fish, cranberry sauce, puddings, and pumpkin and mince pies. We moderns could not eat any such dinner without being sick afterward, and we therefore practice discretion. This is one reason why simplicity should be considered in planning our holiday dinners.

Another reason for simplified meals is that Mother, who is of necessity cook, housewife and hostess all in one, can thus conserve her strength and time for other important duties without slighting the dinner in the least. Mother should not be permitted to work until she is "ready to drop" preparing quantities of food that really are not needed. How can she feel the real spirit of Thanksgiving or Christmas if she is overworked and all tired out from cooking?

A few carefully chosen, properly seasoned and attractively served dishes can be combined to form a most satisfying and enjoyable dinner. A roast fowl, stuffing, potatoes, gravy, two vegetables, salad, dessert and coffee, together with a few appetizers and accompaniments constitute a dinner fit for a king's banquet. The appetizer may be a clear, well-seasoned soup, halves of grapefruit, oyster, crab or fruit cocktails, or orange cup. The accompaniments may be any two or three of the following: olives, celery, spiced pickled peaches or pears, pickles, cranberry or gooseberry sauce, or a tart jelly, such as currant, grape or cranberry. If the dinner is not already too elaborate, candy and salted nuts, or raisins and nuts, may be served last to top off the meal.

Should Write Out Menu

Mother should sit down in her favorite chair with pencil and paper before her and write out her menu. She will begin by choosing the fowl and then build the rest of the meal around the bird. Turkey and cranberry sauce are an inseparable pair. Roast goose or duck is best when prepared with an apple or a combination fruit stuffing, and served with a tart jelly, gooseberry sauce, fried apple, or cranberry sauce. The only rule in choosing vegetables is to select one white and one with color, thereby adding a touch of color to the

table when they are served. If gravy is served it is inadvisable to have creamed vegetable also. After the hearty main course a light salad would be most appreciated, such as lettuce with Thousand Island dressing, cabbage-Cole Slaw, a slice of pineapple with a teaspoonful of grated American cheese, or an apple, celery and raisin combination salad served with boiled dressing or mayonnaise. A dash of paprika, bits of pimiento or a maraschino cherry will add much to the attractiveness of any salad.

All the typical Thanksgiving desserts are rather rich and heavy, but it seems we must have one of these to complete the meal. The old favorites are individual pumpkin pies with whipped cream, warm mince pie with a bit of sharp cheese, steamed Thanksgiving pudding with hard sauce, or cake with fruit or Jell-O Cake or cookies with prune whip would be delicious.

Now that she has chosen exactly what she wants to serve for dinner and written it all down, Mother should post her menu in a conspicuous place in the kitchen or pantry. She should make up her mind to stay within the menu, and not be adding a lot of unnecessary extras when it comes time to serve. Then, following her menu, she should prepare an order list of needed ingredients and secure all possible a week or more in advance. This system will save much grief later. If she is very systematic, she may prepare a working order—a list of the various things that can be done on certain days preceding the holiday and the morning of the day itself, noted in the order in which they could best be done. From this list she can and should apportion various duties to other members of the household.

Everything possible should be prepared in advance, so that only absolute essentials will have to be attended to when preparing the dinner. Any necessary housecleaning should be done early in the week. Linens, glassware and china should be checked over and made ready for immediate use. Members of the family should be encouraged to "lend a hand" in every way possible.

Correct Service Important

Having finished the discussion of plans for our not-too-elaborate, yet most appetizing, holiday dinner, we will now proceed with our plans for the serving of that meal. We will strive for the most attractive service we can devise, which will at the same time be simple and in keeping with our income and mode of living.

Perhaps the most important item in table service is the laying of the table. The daughter of the house or one of the guests may easily take full responsibility for this item. She will extend the table to the necessary length, lay the silence cloth and tablecloth, and then arrange a floral or fruit centerpiece, most appropriate to the occasion. A mirror base will, because of the reflection, add much to the effect. A ship model of the Mayflower filled with fruit would form a most interesting Thanksgiving centerpiece. A small decorated Christmas tree with tiny, gaily-wrapped packages containing candies or favors piled at the base would form a pretty Christmas center table arrangement. Each one should think of some original arrangement and then work it out with the materials at hand. Those who have never eaten a festive meal by candlelight have

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selected a real treat. Secure four low crystal candleholders and four 30-inch white or appropriate colored taper candles. Arrange these around the centerpiece, two at each end, and light them just before the guests are to be seated. If the room is very large, other candles may be needed to light up the serving table and buffet.

Candy Baskets Attractive

Place cards and favor boxes or candy baskets in appropriate colors and designs are inexpensive and add much to the enjoyment of the occasion. The candy baskets may hold salted almonds, tiny mints, or fruit candies. Baskets and place cards go in front of each individual service.

For the individual cover, place the service plate for the first course (the appetizer course) with the dinner knife at the right of the plate, blade being turned toward the plate, and the spoons in the order in which they are to be used to the right of the knife. Place the salad fork, tines up, next the plate on the left, then the dinner fork and finally the cocktail fork if one is used. Carving and serving implements should be placed at Father's right. To the left of the forks place the dinner napkin with the folded edge toward the plate. At the tip of the knife, place the water tumbler or glass. At the tip of the forks, place the bread and butter plate with the butter knife across one corner. Individual salt and pepper shakers should be placed between every other service, on the circle made by the inner line of the service plates.

Whoever arranges the table will also look after the serving dishes. The dinner plates will be warmed, as will all service dishes and platters for hot foods. The salads and cocktails must be kept cold. Pie plates, cups and saucers, sugar bowl and creamer, and dessert silver may be placed on the serving table or buffet in the dining room ready for use.

Service "Family Style"

Service in most farm homes is "family style." For this the cocktail

glasses or soup bowls may be placed on the table at each place, together with crisp, salted crackers, just before the guests are seated. All relish, celery, olive, and jelly dishes may be on the table before the guests take their places. As soon as the first course is finished, some member of the family may act as waitress and remove the cocktail cups or soup bowls and plates, removing from the left, two plates at a time. Then the volunteer waitress will bring on the heated dinner plates and the roast turkey, attractively garnished with parsley, lettuce leaves or any other preferred garnish, and place them before Father for carving and service. Father will also serve the stuffing, gravy and potatoes. The other vegetables may be passed in their service dishes, or served by the persons seated on Dad's right or left. The salads will be placed in front of each cover with this course.

When this main meat course is finished the waitress will remove all service platters, relish dishes, salad and dinner plates, bread and butter plates and silver. She will then brush up the crumbs.

Mother Serves Dessert

If the dessert is to be served by the hostess (Mother), it should be placed before her, together with the necessary dishes and implements. If already arranged for individual service, each guest will be given his or her portion with the dessert silver. Coffee may be poured in the kitchen and the cups passed to each guest, or it may be poured by the hostess at the table, depending on which arrangement is most convenient. The table may again be cleared for the serving of the candy and nuts.

Each member of the family and guest should come prepared to make some interesting or witty contribution to the conversation. Good conversation is as necessary to the success of the dinner as good food. We should linger awhile over the coffee cups if we would get the maximum enjoyment from our feast.

Recipes for Turkey Treats

NO ONE can hope to improve on the old-fashioned way of cooking turkey, stuffed with a perfectly-flavored dressing, and set before us browned and juicy. We can vary it only in the stuffing. But the day after the feast is when we look for something new in turkey left-overs. We are giving a collection of tested recipes to fill this need on the part of housewives. We are also giving instructions for roast turkey.

Roasting the Turkey

Dress, clean, stuff and truss the turkey. Place on its side on rack in roaster, rub entire surface with salt, and spread breast, legs and wings with $\frac{1}{4}$ c. of butter rubbed until creamy with $\frac{1}{4}$ c. flour. Place in hot oven without pan lid until turkey begins to brown, then reduce heat and baste every 15 minutes until turkey is cooked. For basting use $\frac{1}{4}$ c. butter melted in $\frac{1}{4}$ c. boiling water, and after this use the fat in the pan. Pour water in the pan if needed to prevent flour from burning. Turn turkey frequently. If bird browns too fast cover with buttered paper or place roaster lid on pan. Remove the string and skewers before serving, place bird on platter and garnish.

Onion Stuffing

$\frac{1}{4}$ c. stale bread crumbs $\frac{1}{4}$ t. salt
1 c. boiling water $\frac{1}{2}$ t. pepper
1 c. giblet broth $\frac{1}{2}$ c. chopped onion
 $\frac{1}{2}$ t. sage
 $\frac{1}{2}$ c. melted butter

Pour water and broth over bread and let stand 20 minutes, then squeeze out all the water possible. Add remaining ingredients and mix thoroughly. Pack breast and body cavity of bird with stuffing. If it is a very large turkey, the quantity of dressing will have to be increased.

Turkey Cream

Cut the breast and the second joint in several good sized pieces. In the bottom of a glass casserole or baking dish put a layer of cold stuffing and arrange pieces of turkey on this. Make a rich sauce, using 2 T. butter and 2 T. flour rubbed together, and slowly adding $\frac{1}{4}$ c. cold milk to make a thick sauce. Beat the yolks of three eggs, add the milk mixture and 1 t. salt. Pour this yellow sauce over the turkey, cover with 1 lb. of chopped, sauteed mushrooms to which have been added $\frac{1}{4}$ c. bread crumbs, 2 T. butter, and 1 t. salt. Bake in very hot oven for 15 minutes.

Creole Turkey

Make a sauce as follows: Slice very fine one medium-sized white onion and 2 green peppers. Heat thoroughly in a fry-pan with 1 T. butter and brown for 1 minute. Add one can of tomato soup and 1 T. flour. Season this with a teaspoonful each of sugar and salt. When this is all blended together, add 6 small

mushrooms sliced, $\frac{1}{4}$ t. of chopped parsley and $\frac{1}{4}$ t. chopped chives. Slice the turkey as evenly as possible and place in a row of slices overlapping each other in a baking dish, moisten with a little melted butter and heat thoroughly. On a platter put a sauce-boat and fill with the creole sauce. Arrange turkey around sauce-boat, garnishing with celery leaves and pimento strips.

Mixed Turkey

To 1 c. of cold roast turkey, cut in small dice, add $\frac{1}{4}$ c. soft stale, bread crumbs. Make one cup of sauce, using 2 T. butter, 2 T. flour, and 1 c. stock (obtained by cooking bones and skin of turkey). Season with salt, pepper and onion juice. Heat turkey and bread crumbs in sauce. Serve on small pieces of toast, and garnish with poached eggs and toast points. Serving with poached eggs makes a larger number of servings possible from the small amount of turkey left.

Turkey Rolls

Pick off all the small pieces of meat, saving the large pieces for other services. Dice them very small until you have 2 c. Cut about the same size $\frac{1}{2}$ c. of tongue and $\frac{1}{4}$ c. lean, cooked ham. Melt 2 T. of fat, blend in $2\frac{1}{2}$ T. of flour and add $\frac{1}{4}$ c. milk. Season with $\frac{1}{2}$ t. salt, $\frac{1}{4}$ t. each of pepper and nutmeg and a dash of cayenne. Cook in double boiler until smooth and thick, stirring constantly. Add the meat mixture and cook 15 minutes longer. Then add 2 egg yolks, 3 T. of bread crumbs and 1 T. vinegar. Heat well for 5 minutes, pour into a dish and let cool. Shape into croquettes, roll in beaten egg, then in fine bread crumbs. Fry until brown in deep fat heated to 350 degrees F. Serve with a sauce made as follows:

Tomato Sauce

3 T. of butter, 1 minced green pepper, 1 c. strained tomato juice, $\frac{1}{4}$ t. salt, $\frac{1}{4}$ t. of pepper, and $\frac{1}{4}$ t. sugar. Cook in double boiler for 10 minutes, then thicken with 1 T. flour which has been blended until smooth in 1 T. water.

Scalloped Turkey

Make 1 c. of sauce, using 2 T. butter, 2 T. flour, $\frac{1}{4}$ t. salt, few grains pepper, and 1 c. stock (obtained by cooking in water the bones and skin of roast turkey). Cut remnants of cold roast

turkey in small pieces; there should be $\frac{1}{4}$ c. Sprinkle bottom of buttered baking dish with seasoned cracker crumbs, add turkey meat, pour over sauce, and sprinkle with buttered cracker crumbs. Bake in a hot oven until crumbs are brown. Turkey, chicken or veal may be used separately or in combination with equally good results.

Turkey in Rolls

Cut the tops from 6 long crusty French rolls, and hollow them out. Brush with melted butter and brown in the oven. Cut the turkey from the bones. Slice an onion thinly and brown in 1 T. of butter and 1 T. of turkey fat. Slice one apple, add it to the onion, and cook slowly for about 10 minutes. Heat $\frac{1}{4}$ c. giblet gravy and $\frac{1}{4}$ c. water. Then thicken with 1 T. flour, 1 t. curry powder, $\frac{1}{2}$ t. salt, a dash of pepper and cayenne, 1 egg yolk, 1 T. cream, 1 t. lemon juice, and 1 t. parsley all mixed together. Add this to the broth, mix lightly, and when tabling turn in the onion, apple and turkey. Heat thoroughly and then pour into the roll cups which have been kept hot. Sweet pickled beets make an excellent accompaniment for this dish.

Turkey Country Style

Trim off all the meat left on the turkey, leaving in as large pieces as possible. Put the bone and skin in a sauce-pan, add 1 carrot cut in quarters, 2 medium-sized peeled potatoes, and 12 small, white onions. Add 2 quarts of water, what was left of the stuffing and gravy and cook for an hour, keeping tightly covered.

Strain the broth off, leaving the vegetables. Thicken the broth with 2 T. flour and 2 T. butter rubbed together. When the thickened broth comes to a boil, add the onions, the turkey, and the potatoes cut in small pieces. Season with $\frac{1}{4}$ t. salt, 1 t. celery salt, $\frac{1}{2}$ t. pepper, a speck of cayenne, and pour into a deep dish. Add 1 t. chopped parsley and celery and serve. This dish will use the last of the turkey and will make a delicious luncheon or supper dish.

Table of Abbreviations


1 t. equals 1 teaspoonful.
1 T. equals 1 tablespoonful.
1 c. equals 1 cupful.
1 doz. equals 1 dozen (12).
1 lb. equals 1 pound.
All measures level.

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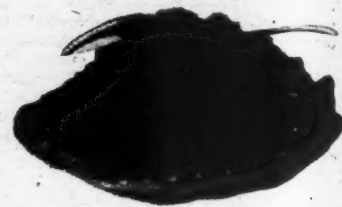
Name.....Address.....

Postoffice.....State.....

Growing Pomegranates for Market

(Continued from page 10)

requires considerable pruning during the first two or three years. No data are available to indicate which form is the better, but largely for reasons of convenience the tree form seems to be preferred. The growers have learned from experience that severe pruning, especially of the heading back type, markedly reduces the crop. For bearing trees the practice believed to be most satisfactory consists of a moderate amount of undercutting, which is necessary to keep the lower branches from lying on the ground, especially when carry-



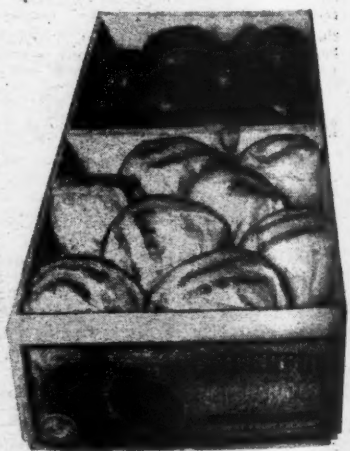
The edible portion of one pomegranate. The brilliantly colored and highly flavored "arils" and many uses

ing the fruit, together with some shortening in of the side branches to encourage the production of new upright growth in the tops of the trees.

Thinning Improves Size and Color

Since large sized and well colored fruit has, until recently at least, commanded a considerable premium, thinning the fruits in order to improve the size of those left has been employed by some growers. This has been accomplished in two principal ways—by the removal of all late bloom and defective fruits in June and thinning the fruit clusters in August. According to the testimony of those who have tried either or both of these methods, they have been productive of better average sized fruit.

On account of the heavy stem and danger of tearing the rind if pulled from the trees, the fruit is clipped, using orange clippers. It is then hauled to the packing house, where it is hand sorted, both grading and sizing being accomplished in the same operation. Machine sizing is impossible on account of the desirability of not breaking the calyx or "crown" on the apical end of the fruits. All non-blemished and highly colored fruit goes into the fancy grade. Good sound fruit more or less thrip marked



Standard pack of pomegranates

or wind-scarred goes into the choice grade. Everything else, including the smaller sizes, is graded as culls and must be thrown away, used for extraction of the juice or utilized in other ways.

Grading Methods

The size as well as the grade is determined by the eye of the sorter, the fruits being packed principally in

(Concluded on page 30)

Engineering for the Fruit Grower

By E. W. Lehmann.

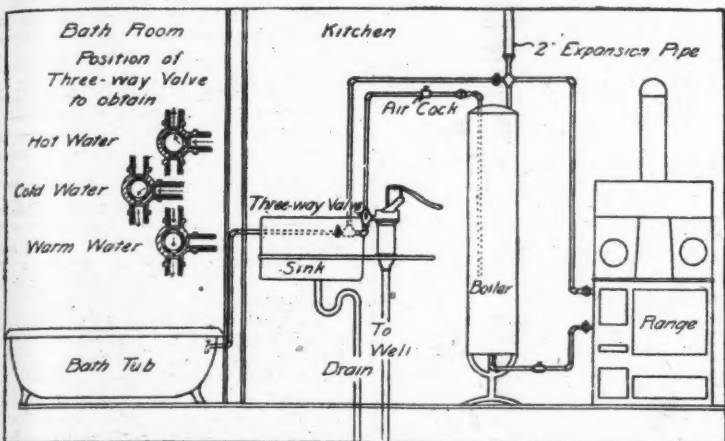
Making the Water Supply Convenient

THE IDEAL plan is to have a complete plumbing system with water under pressure, supplied by a gravity tank or a pressure tank filled by an automatically operated electric pump. Complete details for such systems can be found in many state bulletins; they also are familiar to every plumber. There is a simple system, however, that is inexpensive and which can be easily installed, that will add much to the convenience of the water supply. This system is illustrated below.

The chief features of this system are the force pump and the three-way valve that makes it possible to get water of three temperatures from the same faucet. With the valve in the first position, cold water is pumped

leathery film on the surface is quite noticeable. If a pigment is mixed with a mineral oil instead, no such film is formed.

Cases have come to my attention where old buildings, buildings in need of paint, have had a coat of crank case oil and Venetian red applied with apparently beneficial results. The results will not be lasting, however, because the mineral oil will be absorbed to a large extent by the wood and some of it will evaporate, leaving the pigment and the surface paint unprotected by a film coating, and the pigment will be washed off in a short time. Such a paint would dry slowly, which is also objectionable. It should also be remembered that the biggest item of expense in doing a job of painting is the labor item. For this reason it is best to apply only good quality paint. If cheap labor is available, an



Diagrammatic view of water system adapted for farm homes

from the well into the hot water boiler and hot water is forced out through the faucet into the sink or bath tub. In the second position, cold water is pumped directly into the sink or bath tub, and in the third position, the hot water boiler is used as a storage tank and the warm water from the bottom of the tank is siphoned out into the sink or bath tub.

The fruit grower who does not have a modern home, or who has a tenant house that has not been improved, might well consider this simple plumbing system, with the idea of making it complete at some later date. With a slight additional outlay, a storage tank can be installed, providing water under pressure at all times.

Mineral Oils Not Suitable for Use in Paint

THERE has been considerable interest on the part of a good many farmers in the use of crank case oil as a carrier for paint. It has not only been tried, but it has been advocated by at least one farm paper. This short statement is made merely to point out some of the reasons why mineral oils are not suited for this purpose.

Paint consists chiefly of two parts, the pigment or solid part, which is the coloring matter, and the liquid, which is called the carrier or vehicle. In nearly all light colored paints, white lead is the common pigment used. There are a great many colored pigments, such as Venetian red, Prussian blue and lamp black. Linseed oil is the only suitable oil that is commonly available for mixing paint on the job, according to the United States Department of Agriculture.

Linseed oil is the best carrier for paint because of the fact that when it is exposed to the air it changes from a transparent liquid to a transparent solid. If a bucket of paint is left open for a day or two this tough,

application of cheap paint on old sheds and outbuildings might be justified. However, good whitewash would be preferable to a mineral oil paint.

Choosing New Machinery

A LOT of farmers are in a quandary when they are about to buy a new machine, especially if it is the first one of a particular type. The man who buys his first tractor wants to know the best one on the market. Someone else wants to know the best spraying outfit, or the best pump, gas engine, etc. With the rapid improvements that are being made in all types of machinery, these questions cannot be satisfactorily answered.

It is doubtful if a farmer should buy any machine on the basis of its superiority alone. Some of the factors that should be considered are: the age and reliability of the manufacturer, the character of the local dealer and his ability to render service, the number of machines of the same make sold in the community, and the number of satisfied users. These are more important factors in the selection of a machine than the choosing of the most perfect machine if nothing else is known about it.

Vacuum Cleaners Have Many Uses

FEW PEOPLE appreciate the value of the ordinary household vacuum cleaner. It is one of the big labor savers in house cleaning. It is the sanitary method of cleaning, since it removes the dust instead of stirring it up. It increases the life of rugs and carpets because the dirt, which is one of the worst causes of wear, is kept out. It makes the cleaning of draperies relatively easy. The amount of electricity required to operate a portable vacuum cleaner is very little indeed. One or two cent's worth

should operate an ordinary cleaner for an hour.

In commercial life, vacuum cleaners find uses in many places. The telephone equipment in the exchange is cleaned with them. Tools and various machines are cleaned in the factory. They are used in schools, hotels and hospitals and, in fact, wherever cleaning is to be done.

Vacuum cleaners for grooming horses and stock are among the latest developments of interest to farmers. Special machines are built for this purpose. However, there is no objection to the use of the ordinary portable type for this purpose. There is little question but that a horse is kept in better physical condition when he is kept clean.

Vacuum cleaners are also used for cleaning out incubators. It is usually a difficult and a disagreeable task to clean out an incubator. A vacuum cleaner makes this task an easy one. The use of the vacuum cleaner

principle for cleaning out cisterns should be of interest to the fruit grower. By this method, the sediment and dirt can be removed without disturbing the water in the cistern. A centrifugal pump is best for this purpose. It is connected through a hose and pipe to a funnel-shaped device at the lower end. In the funnel is an ordinary check valve which allows the water and dirty material to enter as it is moved about over the floor and walls of the cistern. The big advantage of the check valve in the lower end of the pipe is to simplify the matter of priming the pump when it is started. Such an outfit makes it possible to clean a cistern any time of the year, and only a small amount of water is wasted.

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Johnny—Because I wanted to go fishing.—Chicago Tribune.

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Conkey's Canker Special stops and reduces that swelling of the membranes in the eyes and other places caused by colds or other roup conditions. Prevents cankers from forming. Squirt it into eyes and nostrils.

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If your dealer cannot supply you with Conkey's, don't accept substitutes, as they may do actual harm. Send us your order, and we will ship C. O. D. postage prepaid, so that you can pay the postman for the remedy only when it arrives.

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NO DULL TIMES SELLING FOOD—PEOPLE must eat. Federal distributors make big money; \$3000 yearly and up. No capital or experience needed; guaranteed sales; unsold goods may be returned. We furnish you with sample case, license and free samples for customers. Sure repeat orders. Exclusive territory. Ask now. Federal Pure Food Co., D2311 Archer, Chicago.

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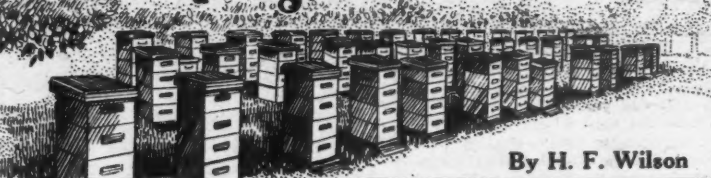
ORCHARD POSITION WANTED ABOUT FIRST of year by experienced, college trained, single man. Box 111, American Fruit Grower Magazine, Monadnock Bldg., Chicago.

SINGLE MAN, 28, WITH FIVE YEARS COM-mercial apple growing experience wants job as orchard manager. J. E. Lane, Petersburg, Tenn.

PLANTS FOR SALE

CUMBERLAND RASPBERRY PLANTS (TWICE inspected), \$1.50 per hundred; \$12.00 per thousand. S. H. Graybill, Richfield, Pa.

Bee Keeping for Fruit Growers



By H. F. Wilson

Care of Comb and Ex-
tracted Honey

IT IS a well-known fact that comb honey needs to be more carefully stored than extracted honey. When comb honey is left over from one season to another, it necessarily loses some of its value because of crystallization in the combs. A part of this damage can be prevented by keeping the honey in a warm room in which there are no great fluctuations of temperature. Comb honey should never be stored in a room where the temperatures vary greatly from day to day. If the beekeeper finds that, toward the end of the season, he is likely to have comb honey left over, he should perhaps conduct a house-to-house canvass in order to dispose of this surplus, rather than hold it over.

It will be much easier to sell comb honey if attention is given to having the sections well cleaned of propolis and finger marks. Just before the sections are put into a shipping case, each one should be carefully sandpapered, so as to leave the wood bright and clean. Much labor and time can be saved by painting the top of the sections with a thin coat of paraffin after they have been placed in the section super and before they are put on the hive.

After the honey is removed from the hives and is being prepared for market, particular attention should be given to the careful grading of it into the classes "fancy," "No. 1" and "No. 2." It is a great mistake to offer for sale any honey which does not come up to the grade of "No. 2." If you are not thoroughly familiar with the grading of comb honey, write to the United States Division of Agriculture, Bureau of Entomology, Washington, D. C., for a set of grading rules, or you may be able to get satisfactory rules by writing to the Wisconsin State Department of Markets, at Madison, Wis.

The preparing of extracted honey for market is a more simple process. Honey may be taken directly from the extractor, heated and strained, but it is better to let newly extracted honey settle before the straining is done. In this way, a great many smaller particles of wax and propolis collect at the top, where they can be removed with a hand-strainer.

After settling, extracted honey should be thoroughly strained through two thicknesses of cheese cloth, and before it is put into the containers, it should be heated to about 160 degrees F., to keep it in the liquid form for a long period of time.

The quality of extracted honey will deteriorate to some extent with age, particularly if it is allowed to remain in unfavorable conditions. Even extracted honey should be kept in a storeroom where uniform temperatures may be maintained and where the honey is not subjected to changes of extreme cold and heat.

It has been found that if it is not thoroughly ripened, there may be a sweating process within the container, and as a result, the mass of honey may collect moisture at the top and fermentation is likely to begin. This explains why extracted honey, which has stood for a long time without apparent deterioration, suddenly begins to ferment. If extracted honey is held over from one year to another, each can should be carefully examined before it is disposed of to see that no fermentation has occurred. A single bad sample might spoil the sale of an entire lot.

National Grading Rules

NATIONAL RULES for grading honey have been developed by the United States Department of Agriculture, and these regulations should have a very beneficial effect in improving the quality of honey offered for sale in the open market.

These grading rules make it possible for every beekeeper to register with the Department of Agriculture at Washington, D. C., and it will be possible for beekeepers who are willing to follow the national grading rules, to secure a stamp and register, indicating that their honey is graded according to the standards of the United States Bureau of Markets. Individual beekeepers can secure stamps by writing to the Division of Agriculture, United States Department of Agriculture, Washington, D. C.

An Intermountain Bee
Laboratory

AT THE last session of Congress, the sum of \$10,000 was granted to the United States Bee Culture Laboratory, for the development of a laboratory to study beekeeping conditions in the arid regions of the far west. This laboratory is to be placed at Laramie, Wyoming, and an exhaustive study of conditions relating to beekeeping throughout the entire intermountain region will be made.

The Beeswax Moth

WE ARE in receipt of many inquiries from beekeepers concerning the "beeswax moth." Some of these inquiries indicate that the beekeepers find the "wax moth" destroying their colonies and even at times feeding on the young bees.

We do not know of any case where the beeswax moth has actually gone into and destroyed a colony of bees. It is not uncommon to find the beeswax moth damaging combs in a bee colony, but they cannot thrive in strong colonies of bees, and as a rule, do not enter until a colony becomes very weak from lack of care on the part of the beekeeper. If a colony has become greatly weakened, and the cluster of bees is small, the beeswax moth is able to enter the hive and lay eggs on the side combs.

Having once become established in the hive, they are able to continue feeding on the combs protected by their webs without interference from the bees. If the colony is not strengthened, it will gradually die out, and finally the combs will become totally destroyed by the wax moth. On the other hand, if these combs are placed in a strong colony of bees, the wax moth will almost immediately be cleaned out and the combs repaired.

ACCORDING TO the report of the Bureau of Agricultural Economics, United States home exports for the fiscal year ending June 30 were 4,074,590 pounds, and 3,899,776 pounds were imported. This gives a balance of trade in favor of the United States of 174,814 pounds.

"HONEY FOR HEALTH" is the slogan adopted by the Michigan Beekeepers' Association, according to Russel H. Kelty.

THE CANADIAN government estimates that the dominion honey crop in 1925 was about 16,000,000 pounds.

Red Spider Controlled by
Spraying

THE RED SPIDER, a pest which is always serious in the South and sometimes in more northern sections, promises to be brought under control by spraying methods as a result of investigations conducted by the Boyce Thompson Institute for Plant Research at Yonkers, N. Y. A spray made by mixing colloidal sulphur with lubricating oils will kill 90 to 95 per cent of the red spider mites, according to Dr. Albert Hartzell. Sulphur alone kills only 12 per cent of the mites and oil alone kills 42 per cent, but the combination of the two materials makes a killing of 95 per cent.

The discovery should prove valuable not only to fruit growers, particularly in southern sections, but to nurserymen and greenhouse growers as well. The red spider attacks some 40 different species of horticultural plants and causes losses each year which run into the millions.

The toxicity or poisonous effect of the material needs to be further studied, according to Dr. Hartzell, but it has already been proved that the material works safely with a number of horticultural crops.

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FARMS AND ORCHARDS

SOUTHERN CALIFORNIA FARMERS WHO farm small irrigated acreage intensively make money. You can make a good living here in a climate you will like. Twelve months open season. No pioneering—best paying fruit and truck crops, also poultry, well proved—efficient marketing organizations. You can buy land at fair prices and on easy terms. The Santa Fe Railway offers a free service in helping you get started right. Ask for illustrated folder and try our service. C. L. Seagraves, General Colonization Agent, Santa Fe Railway, 942 Railway Exchange, Chicago.

FRUIT GROWERS IN THE OZARKS OF southern Missouri and northern Arkansas have big advantage in having soil ideally adapted to fruit and berry growing. A mild healthful climate, pure mountain spring water, hard surfaced roads, good schools and prosperous growing communities make the Ozark region a fine place to live. The nearby cities of St. Louis, Kansas City and Memphis provide great markets. Land can still be bought or rented at prices that insure good profits on grapes, strawberries, apples, small fruits and vegetables. Write Frisco Railway, 885 Frisco Bldg., St. Louis, Missouri.

CALIFORNIA POULTRY AND FRUIT RAISING—if you are interested now or at some time in the future, in owning a profitable poultry farm, or fruit and poultry farm combined, in southern California, send for a copy of our booklet, "How to Go in the Chicken Business and How to Stay in." California Hotel Farm Company, 18 North Euclid Ave., Pasadena, California.

WANTED TO HEAR FROM RESPONSIBLE parties interested in trucking or fruit growing. Have exceptional offer that spells independence without necessity of big investment. Address S. M. Burns, Cameron, Texas.

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APPLE WRAPS, SHREDDED OILED PAPER, orchard supplies, all kinds. S. H. Burton, distributor, Washington, Indiana.

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Spencer Magazine Carbine

Lever action, 5 shot, caliber 50 rim fire. Weight 11 lbs., 37 inches long; barrel 20 inch; in good order. Price, \$4.50 each. Ball cartridges \$1.50 per 100. 15 Acres Army Goods, Catalog 1925, 60th Anniversary issue, 372 pages, fully illustrated, contains pictures and information of all American military guns and pistols since 1776, also rifles, revolvers, uniforms, tents, knapsacks, saddles, war medals, etc. Mailed 5c stamp. Special New Catalogue for 2c stamp. Est. 1868. Francis & Son, 501 Bldg., New York City.

KITSELMAN FENCE
By Special \$14.00, says J. T. Wasson, De Soto, Illinois. You, too, can save. We Pay Freight. Write for Free Catalog of Farm, Poultry, Lawn Fence, Posts, Gates. KITSELMAN BROS. Box 399, MUNCIE, INDIANA.

Present Day Viewpoint Toward Bud Selection and Rootstocks

(Continued from page 3)

these hereditary units during multiplication of the plant cells. The numerous varietal differences that we find in plants are probably due to changes in structure of these hereditary units which have taken place in the distant past. We find many differences in plants, of course, but we must remember that nature has been at work for thousands of years in developing these changes. Such sports or mutations occur only with great frequency. We need only to recall the millions of plants grown and the billions of cell divisions which occur to realize that sporting occurs with great frequency in most cases.

With this fundamental information before us, I believe we are in position to consider more intelligently the questions of bud selection and rootstocks. Let us consider bud selection first.

Bud Selection

In the propagation of fruit plants, we are not concerned with sexual reproduction. The scions, buds, cuttings, suckers, runners, etc., that we use are simply parts of the parent plant removed bodily. By rooting these or by propagating them on other roots, we are simply extending the original plant. All of the Baldwin apple trees in existence, for instance, are simply extensions of the original Baldwin tree. In such cases of asexual reproduction, we are not concerned in any way with recombination of unit characters, which is of such common occurrence in plants which are propagated by sexual means. The only means by which fundamental change can take place in plants propagated asexually is through bud sporting.

We have all observed the differences that exist in fruit trees even though they are propagated asexually. Marked differences exist in the size, vigor and productivity of trees, notwithstanding the fact that they may all be of the same age and that they may have been treated the same. With these differences in evidence, it is natural for anyone to believe that superior strains can be obtained by taking buds and scions from the superior trees. But can this be done? Let us examine the evidence on this point.

Years ago Dr. J. C. Whitten of Missouri, one of the best horticulturists who has ever lived, thought that superior trees could be obtained in this way. Accordingly, he conducted tests in which trees propagated from selected buds were compared with trees from ordinary buds and with trees from buds of inferior quality. To his great disappointment, Dr. Whitten found that the trees from selected buds did not prove superior to those from other buds. He concluded that improvement by bud selection of ordinary variations within a variety was impossible.

Prof. C. S. Crandall of the University of Illinois, another horticulturist of long experience, conducted a series of tests in which he compared large and small buds, buds from different parts of the trees, and robust scions and weak scions, with each other. He found no differences in the resulting trees, and he concluded that no improvement could be expected from bud selection of this kind.

Prof. M. B. Cummings of the Vermont Experiment Station compared scions from high and low yielding trees for 15 years. He drew the following conclusion: "The results thus far secured . . . do not afford affirmative support to the scion selection idea."

Prof. F. T. Bioletti of the University of California, who is recognized as one of the best authorities in the world on grape culture, rooted grape scions from high and low yielding vines and compared the results for many years. He found that plants of large scions started quicker and made earlier producing plants. With reference to bud selection, he drew the following conclusion: "The attempt to increase the

bearing of a variety of vine by the selection of buds from a parent vine . . . distinguished by continuous and heavy bearing . . . is fruitless."

A number of years ago I entertained the viewpoint that it ought to be possible to improve an asexually reproduced variety by the continued use of propagating material from the most productive plants. I noticed that sweet potato hills showed great differences in productivity and in size of the potatoes. In the hope that I would be able to develop a superior strain, I saved potatoes from high and low producing hills and compared the results with those obtained from ordinary seed. After several years of work along this line, I discovered that no progress was being made. The unproductive hills and the ordinary commercial seed were producing as good results as the most productive hills. Apparently, the differences in the productivity of different hills of sweet potatoes are due to environment and not to hereditary differences contained within the plants. Progress by means of selection appears to be impossible unless there are differences in the hereditary composition of the plants involved.

Shamel's Experiments

Numerous other experiments have been conducted which point in the same direction. Among scientific investigators there is only one who is an outstanding advocate of bud selection. This is A. D. Shamel of the United States Bureau of Plant Industry, who is located in California. Shamel maintains that there are numerous bud mutations with reference to productivity and quality in Navel oranges, and he claims that scions and buds taken from such superior twigs and branches will give rise to superior trees. He does not question the fact that bud mutations must occur before one may expect to perpetuate the variation. He does maintain, however, that minor mutations are very common in citrus fruits and that by propagating repeatedly from these the productivity and quality of the variety can be gradually raised. Other authorities believe that bud mutations in citrus fruits are not so common as Shamel proposes and that most of the variations found in Navel oranges are due to ordinary continuous variations rather than to sporting. While these differences of opinion exist among experts as to the frequency of sporting, the important fact from the standpoint of this discussion is that all of them, including Shamel, agree that a bud difference must be the result of sporting, or fundamental change, before the variations can be inherited.

No Progress from Selection of Ordinary Bud Variations

It seems to me that the evidence is distinctly against any chance of our being able to make progress by bud selection of ordinary variations. Such variations are due to differences in soil, climate, exposure, culture, etc. They are not caused by differences in hereditary make-up of the plant. Therefore, they cannot be inherited. Before a bud difference can be inherited, it must be the result of a change in composition of one or more of the hereditary units. Such changes are very rare. According to Prof. Bioletti, only one authentic case of sporting has occurred among the 100,000 Muscat grapevines growing in California. Other investigators have found evidences of similar rarity in the occurrence of bud mutations in other fruits. A considerable number of the known bud sports are apparently the result of simple changes in units affecting the color and shape of the fruit.

Please understand that I do not underrate the value of bud sports. They do occur occasionally, and we should all be on the lookout for them. They are one means by which we can make progress in the improvement of asex-

ually reproduced plants. The other way consists in growing plants from seedlings and thus providing opportunity for recombination of hereditary units. Let us not lose money and valuable time by entertaining the belief that every difference we see in nursery plants is due to bud sporting.

(To be concluded in the December issue)

Parts of New York and Connecticut Added to Quarantine Area

AT THE hearing held in Washington on September 25, no objection was raised by those present, and it was decided to include portions of New York and Connecticut in the area quarantined on account of the Japanese beetle.

Heretofore, portions of New Jersey, Pennsylvania and Delaware have been quarantined on account of this insect. Recently, the insect has been found at several points along the Hudson River, in Long Island and near Stamford, Conn. It has also been found in areas outside the quarantined area in Pennsylvania. The quarantine will probably be extended to take in all of the newly infested localities.

The extension of the quarantine will place restrictions on the interstate movement from these areas of farm, garden and orchard products, including grain and forage crops, nursery and greenhouse stock, sand, soil and manure.

War on Cedar Trees in West Virginia

OVER 9,000,000 red cedar trees have been destroyed in West Virginia during the past season in the relentless warfare that is being waged against apple cedar rust. Over 100,000 acres have been cleared of cedar trees, according to A. A. Gold, who is in charge of this work for the state department of agriculture.

Much work remains to be done, but many sections have made such progress in the fight against cedars that the orchards were well protected this year. By the end of another season, it is expected that the cedar rust menace will be brought well under control.

THE AMERICAN Telephone and Telegraph Company made some downward revisions of telephone rates on October 1 that will prove helpful to co-operatives and large individual shippers. Rates have been substantially reduced for distances of 150 miles or more. The greater the distance, the greater is the reduction. For instance, the station-to-station rate from San Francisco to Chicago is now \$8.25 instead of \$11.90, as formerly.

Increases were made in some instances on distances between 24 and 100 miles in order to make the schedules consistent. In no case, however, was the station-to-station rate increased more than five cents.

The evening rate can now be obtained at 7:00 P. M. instead of 8:30, as formerly. This rate will be about 25 per cent below the day rate. Between 9:30 P. M. and 4:30 A. M., a station-to-station rate can be obtained that is about 50 per cent below the day rate. This rate will apply where the day rate is 40 cents or more, and the minimum reduction is 35 cents. The midnight discount rate has been discontinued.

The company claims that the revised rates will save telephone users of the country about \$3,000,000 annually.

A negro mammy had a family of well-behaved boys. One day her mistress asked: "Sally, how do you raise your boys so well?"

"Ah'll tell you, missus," answered Sally. "Ah raise dem wid a barrel stave and Ah raises 'em frequent!"

Contentment in Every Draw—Cards or Tobacco

Pipe-smoking card-player finds his tobacco keeps him happy, winning or losing

A new slant on pipe-smoking contentment is brought to light by Mr. W. H. Doughty, a furniture dealer of Greenville, Tenn.

A discovery made during a card game has evidently made him a life member of the Edgeworth Club.

Read what he writes:

Larus & Bro. Co., Richmond, Va.
My dear Sirs:

For twenty years I have been engaged in retailing furniture. On rainy days my partner and I call up some of our friends and invite them down to a little poker game.

In this melange of our selection there happened to be a fellow by the name of Austine—a tobacco dealer. This fellow Austine was a most consistent loser—but losing never seemed to affect his morale.

His conduct became a study with me. My winning and losing moods were reflected in my actions. When winning I was the good fellow. When losing I was the grouchy. All this time I noticed Mr. Austine, the tobacco dealer, sitting back unperturbed, pulling away on his pipe—contented—at peace with the world—winning or losing.

Finally I put the matter up to Mr. Austine for a solution. He said, "Major (my poker title by brevet), there is no mystery to that—my contentment is due to the tobacco I smoke. When I need a friend in poker or business—Edgeworth has never failed me. It carries contentment in every draw—whether the cards run good or bad."

The next time I visited the Mason Corner Tobacco Shop I purchased some of this Edgeworth. It has made a new man out of me. I can look them in the face and smile—smile—smile whether they run good or bad.

If you ever indulge in poker or any other losing business, my advice is—fill up the old pipe on Edgeworth and as the delightful fragrance fills the air you will be at peace with the world.

Sincerely,
W. H. Doughty.

To those who have never tried Edgeworth we make this offer:

Let us send you free samples of Edgeworth so that you may put it to the pipe test. If you like the samples, you'll like Edgeworth wherever and whenever you buy it, for it never changes in quality.



Write your name and address to Larus & Brother Company, 13-W S. 21st Street, Richmond, Va.

We'll be grateful for the name and address of your tobacco dealer, too, if you care to add them.

Edgeworth is sold in various sizes to suit the needs and means of all purchasers. Both Edgeworth Plug Slice and Edgeworth Ready Rubbed are in small, pocket-size packages, in handsome humidor holding a pound, and also in several handy in-between sizes.

To Retail Tobacco Merchants: If your jobber cannot supply you with Edgeworth, Larus & Brother Company will gladly send you prepaid by parcel post a one- or two-dozen carton of any size of Edgeworth Plug Slice or Edgeworth Ready Rubbed for the same price you would pay the jobber.

On your radio—tune in on WRVA, Richmond, Va.—the Edgeworth station. Wave length 256 meters.

Profitable Poultry

By Ralston R. Hannas

Get More Eggs With Lights

THE PROBLEM of getting winter eggs is always with us, but it is not so bad as it used to be, for the use of lights in laying houses has helped considerably in this regard. There is such a thing, of course, as overdoing the use of lights, but the judicious use of them will add greatly to the income.

Gasoline lanterns or electric lights may be used, although the latter are preferred by most people. If it is not possible to "hook up" with a commercial light and power company, electricity may be obtained from various electric light units, a number of which are on the market. The profits from the poultry flock can be used to pay for electricity in the home as well as in the laying house.

The first of November is a good time to begin turning on the lights for the layers. Morning, evening, or a combination of morning and evening lights may be used, or a system known as the "evening lunch" method may be used. No more than 14 hours of daylight, including the amount of natural daylight and the amount supplied artificially, should be given the birds. A steady amount of 12 or 12½ hours for six months, however, is better than a larger amount for a shorter period. Best results are obtained by using the early morning system. Turn the lights on about 4:30 and leave them on until daylight. The evening lunch system is also good. This consists in turning the lights on for one hour only, after the birds have gone to roost and have had some sleep. The lights may be turned on from eight to nine or from nine to 10.

The value in the use of lights is not in the light itself, but in the fact that a longer time is given the birds to eat. Extra grain must be given when lights are used, or there is no use in turning on lights. An extra amount of two pounds per 100 birds is needed, and the dry mash must be kept before them as usual. Plenty of fresh drinking water must be available for them. This is one of the hard things to arrange when early morning lights are used, unless you get up yourself early every morning and put fresh water in the pans. It cannot be put there the night before in cold weather on account of freezing. If arrangements can be made to keep it warm, as by using small oil burners made especially for that purpose or by having an electric light with a carbon bulb that can be lowered into the water, then the water can be fixed the night before. This problem does not arise when the evening lunch method is followed.

Figures from a leading experiment station show an increase of 19 per cent in egg production during six months due to the use of lights. With the increased price received at this time, this means a good profit.

Starting Off the Layers

THE NEW PULLETS are in their laying quarters by this time and should be laying a few more eggs each day. The problem is to keep them laying these eggs and at the same time keep them in good physical condition; give them the feed from which to make the eggs and from which they can produce flesh for themselves.

There are many good feeds on the market. Practically all the large, reliable feed companies sell mixed feeds—scratch feeds and laying mash—that are difficult to be beaten by home mixtures, for they are compounded by men who have been trained thoroughly in the requirements of poultry, and the mixtures are mechanically as near perfect as it is possible to get them. There is so much competition among

feed companies that they do not dare put anything but the best in their feeds.

However, for those who prefer to mix their own, the following suggestion is given both for a mash and a scratch ration. It must be borne in mind also that there are many mixtures that are good; this is only one of them, but it is good:

Scratch—
2 parts cracked corn.
1 part wheat.

Mash—
Equal parts of bran, middlings, corn meal, ground oats and meat scrap.

If the ground oats that are obtainable in any section contain too much fibre in the form of hulls, they may be eliminated from the ration, using in their place a half part of either rolled oats (oat meal) or pin head oats and adding an extra half part of middlings. An addition of one pound of salt, five pounds of bone meal, five pounds of finely ground limestone, and two pounds of flowers of sulphur to each 100 pounds of the mash will add minerals that will be of great value to the birds.

Feed the grain in the litter at the rate of 14 pounds per 100 birds per day, if they'll clean it up. Don't feed more than the birds will eat up clean; the aim should be to get them to eat as much as this, however. If they eat at least 12 pounds, though, they will be doing fairly well. They will get enough of the egg forming feed as long as the dry mash is kept before them all the time in hoppers. A wet mash fed once a day, what they will clean up in about 15 minutes, will be relished by them and will aid in the consumption of dry mash. The regular dry mash, moistened with water or milk, preferably the latter, will stimulate egg production. If the birds are not quite what they should be as to weight, or if it is desired to feed them something to maintain their weight even though they have not yet lost, a wet mash may be given, composed of equal parts of corn meal, rolled oats or oatmeal, and semi-solid buttermilk.

Deep litter should be the rule—but not at first. When the pullets are first put in the laying house, they have not been used to scratching for their grain, so do not put too much litter in at the start, only enough to cover the floor so the birds will get the idea of scratching in the litter for the grain which should be scattered here. The amount of litter can be increased gradually until there is a depth of about eight inches. Wheat or rye straw is the best for litter.

Plenty of drinking water should be "on tap" at all times, as should oyster shell and grit. Green food is not only necessary but greatly relished by the birds. Cabbage and sprouted oats make splendid green food for layers. Mangel beets are good for succulence, though they are not so good as green food.

Whitewash

BEFORE the new pullets are put in the laying houses, the houses ought to be cleaned thoroughly and disinfected. Houses that are to house the older birds and breeders should have the same treatment. One of the best ways to freshen up these houses is to give them a good coat of disinfectant whitewash after the cleaning.

A good formula to use is the one recommended by the Kansas Agricultural Experiment Station. It is composed of one and one-half pecks of hydrated lime, two pounds of salt, four gallons of commercial lime-sulphur and 40 gallons of water. If this is too much, the following quantities of the same ingredients may be used: one heaping quart of hydrated lime, three tablespoonfuls of salt, one

and one-half quarts of commercial lime-sulphur and four gallons of water.

To make it adhere readily, add alum at the rate of one ounce to the gallon. A gloss-like oil paint appearance may be given the wash by dissolving a pound of cheap bar soap in a gallon of water, adding about five gallons of boiling water and in turn adding this to about five gallons of thick white-wash. Commercial disinfectants may be used in place of the lime-sulphur, if desired.

Tuberculosis

IN MANY parts of the country, tuberculosis in poultry is a serious matter. It is easily spread from infected birds to healthy birds, and losses in these sections are heavy. There is no cure for it, and unfortunately, it is not possible to detect the presence of the disease until it has reached the advanced stages.

The last stages are marked by weakness, paleness of the comb, skin and mucous membranes, loss of flesh, swollen joints, and lameness. The appetite generally remains normal until shortly before death. These symptoms, of course, are not sufficient to identify the disease definitely, but they are enough to arouse one's suspicions. A post mortem examination of a fowl in the last stages of the disease shows the liver to be enlarged and spotted with whitish yellow nodules which extend down into the liver tissue, as may be determined upon cutting into the nodules. The spleen is affected the same way, and the walls of the intestines are affected in very bad cases. Absolute detection, however, cannot be made except upon microscopic examination. If the above post mortem symptoms are present, though, a safe diagnosis of tuberculosis may be made.

Strict sanitation of the grounds and source of water supply, if a brook runs through the place, must be practiced. All birds affected or suspected of being affected should be isolated from the well birds. A good plan is to have the flock tuberculin tested, which can be done by a competent veterinarian. This shows up the birds that have the disease. All such birds should be gotten rid of at once—not for human consumption, however—and new birds should be kept off the grounds the infected birds have been running on, until the grounds can be plowed and sown to some crop. The University of Illinois recommends cleaning the houses with hot lye, one pound to 40 gallons of water, applying it with a broom. A three per cent cresol solution (U. S. P.) makes a good disinfectant.

Uncooked garbage containing poultry scraps must not be fed to chickens. Care should be taken in buying stock or hatching eggs to get them from flocks that are known to be free from the disease.

Scaly Leg

THE SHANKS of adult birds will often show a crusty or scaly appearance, which is due to small mites getting under the scales of the leg. These mites burrow deeper and deeper into the tissue which leads to the formation of a number of cells and the giving off of a serum that accumulates and forms crusty deposits beneath the scales.

Treatment consists in washing the shanks with warm, soapy water and rubbing in well an ointment composed of one part oil of caraway and five parts of white vaseline. If the case is not very far advanced, that is, if the scales are not very crusty, the treatment may be applied once every two or three days. If, however, the case is advanced before treatment is

started, the ointment may be applied twice a day. Another treatment is one composed of one part coal oil and two parts of raw linseed oil rubbed well. A teaspoonful of kerosene in a quart of water may also be used.

Growing Pomegranates for Market

(Continued from page 26)

the following sizes: 24's, 32's, 40's, 48's, 56's, 64's, 76's, 90's, and 106's. The fruits are wrapped in tissue paper and packed in half orange boxes, this container being preferred by the trade. Sizes 24 to 64 are packed in two layers, the remaining sizes in a three-layer pack.

The sizes which ordinarily command the best prices are 32's, 40's, 48's, and 56's, although during the past two seasons the smaller sizes in a three-layer pack have sometimes brought more money than the larger sizes.

The shipping season usually begins in late September and extends to October 15, or at the latest, November 1. The tendency during recent years especially, has been to rush the fruit to market too early, which the shippers have quite generally admitted to be a mistake. The result of this practice has been the breaking of the price for later shipments and dissatisfaction all around.

Prices Received by Growers

During the period 1918 to 1922, it was not uncommon for growers to net three to five cents per pound for the fruit, at which prices handsome profits were made. Indeed, in all probability these prices were responsible for the large acreage of young trees which will reach bearing age in the next three or four years. In 1923, however, the usual price level did not prevail, and there was considerable complaint on the part of the growers. The situation during the 1924 season was somewhat worse, the price range in the eastern auction markets being from about \$1.40 to \$2.20 per half orange box delivered. With an average delivered cost in the neighborhood of \$1, it can readily be seen that there was little in it for the grower.

Induce State to Establish Standards

Realizing that drastic measures must be undertaken if the industry was to survive, and feeling that the adoption of maturity and grade standards was the solution to the problem, the shippers and growers requested the state department of agriculture to take the necessary steps to establish rules governing the packing and shipping of Wonderful pomegranates, under the provisions of the new Fruit and Vegetable Standardization Act. After numerous meetings and hearings, rules were adopted determining tolerance for defects, maturity, labeling of packages, standard packages and sizes and methods of packing. The half orange box was adopted as the standard package for two layer packs and, with 1½ inch cleats at each end, for three-layer packs.

The 1925 crop was all marketed under the new standards and with results which indicate the wisdom of adopting rigid standardization.

With this solution of the fresh fruit marketing problem provided, and with considerable promise in the development of juice products, both growers and shippers feel decidedly relieved and are optimistic in the belief that the big production in sight can be satisfactorily disposed of, especially if a certain amount of dealer and consumer advertising can be undertaken in the near future. Working out a plan for accomplishing a wider distribution of the product now appears to be the only cloud on the distant horizon of the California pomegranate grower.

You Know How It Is

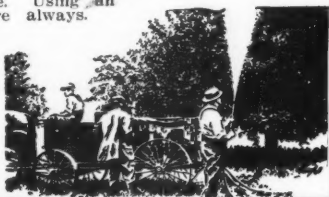
"Have the Browns money enough to retire on?"
"No; just enough to be restless on."

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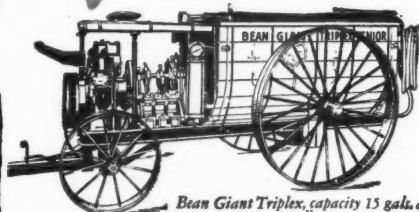
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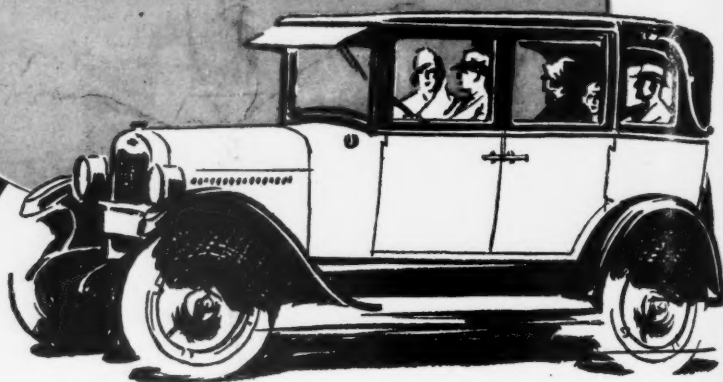


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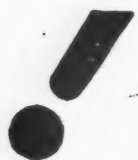
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